

COMPUTER MAGAZINE OF THE YEAR\*

MARCH 1987

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AT THE  
INDUSTRY**

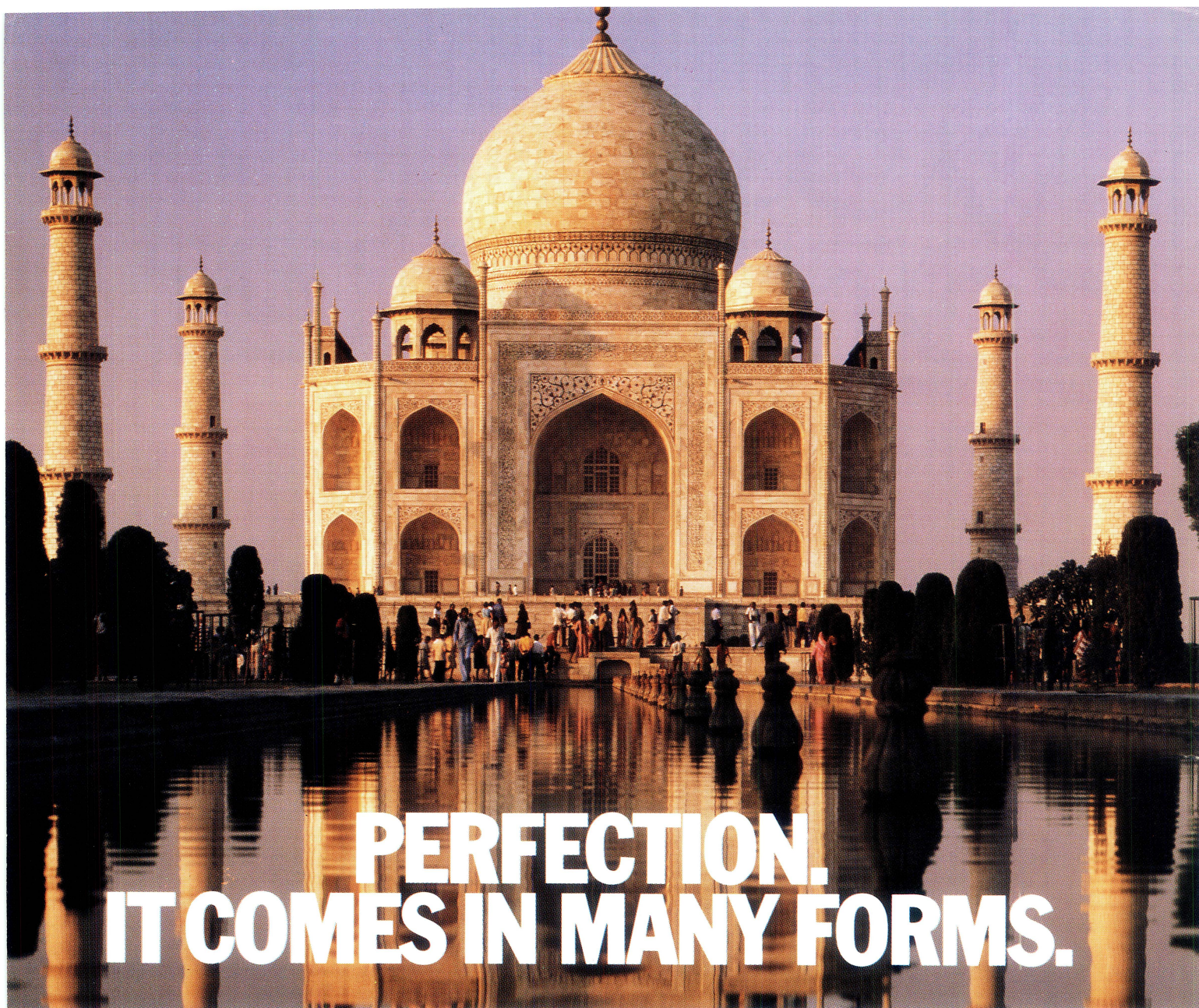
**Apple's New Mac —  
What, Where, When!**

**Microbee's Teleterm —  
A Viatel Necessity**

**Multitech's Accel-erATor 900**

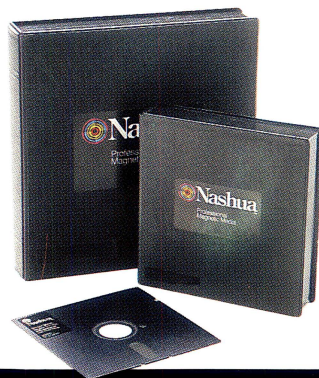
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# CONTENTS



## NEWS 7

## FEATURES 18

Personal Computer of the Year Awards	16
Software — Whither and Whence	Of Ada Lovelace and celestial computers 18
Let's Have a Go	Games winner Strategic Studies Group 23
It's a Breeze	'Work smarter, not harder!' 31
Start Thinking Smart	From roller skating to desktop publishing 36
Future Impact	'Technical Excellence Down Under' 38
DELFA	Tim Hartnell's DEclarative Language for Aussies 45
The Constant Computer	'What you need, laddie ...' 50
Debtmaster Pt 5	Invert those delinquents! 53

## REVIEWS 62

Stylus	A programmer's dream ... 56
Framework is a Picture II	Release 1.1 is here! 62
Alice in Borland	Fancy features in a dynamic environment 69
The MicroBee Teleterm	A Viatel necessity 72
Game Reviews	140

## INSTRUCTION SET 60

Build Your Own Bulletin Board Pt 2	60
C for Smarties Pt 15	Encryption — another private realisable fantasy 80
Turbo Tips	Fudging and cursoring with Turbo Pascal 86

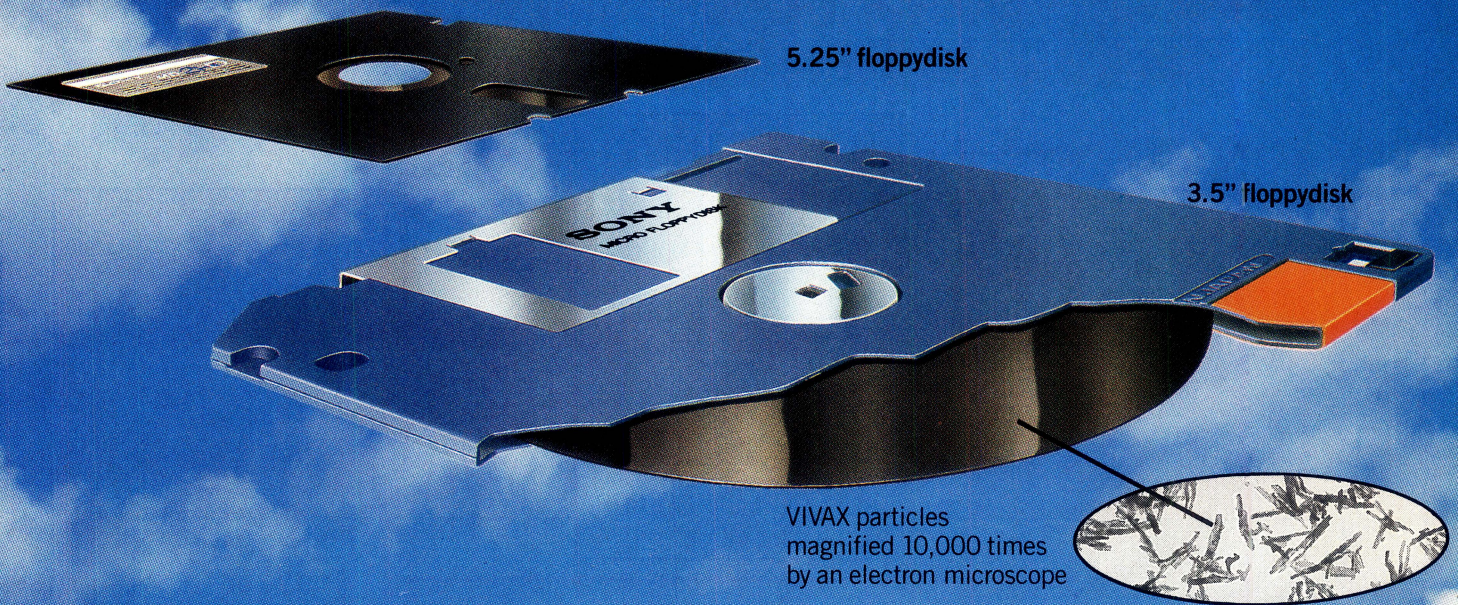
## POCKET PROGRAMS 94

## PUBLIC DOMAIN 113

Your Computer's Bulletin Board	113
New Products	118
User Groups	Make that micro work! 126
The Prophet Speaks	The latest PAMs update 142
IBM Underground	143
Your Apple	144
Your BEE	149
Your BBC	Some delightfully simple alternatives to Mandelbrot 150
Your C64	151
Your IBM	154
Your Mac	Stewart Fist ponders the new one (or two?!!) 156
Lotus Hotline	158
Reader's Classifieds	159
Services	160

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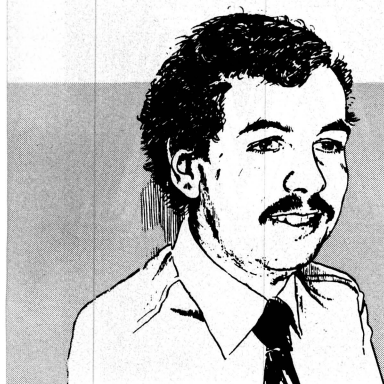


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## Publish or Be Damned!

**R**ECENTLY WE attended the official launch of Xerox Ventura Desktop Publisher Edition, the latest in a barrage of desktop publishing software and hardware announcements. Just like 1979 was the year of Visicalc and other spreadsheets, 1987 seems destined to be the year of desktop publishing on the PC. (Apple users got it over and done with last year).

At the launch, Xerox announced that Ventura will be distributed by Megavision, a Sydney distributor of high resolution graphics cards and monitors, owned by Rudi Hoess. Long time readers of YC will certainly have heard of Rudi, who was one of the pioneers of personal computing in Australia, launching Computerland and being the first importer of Apple computers.

With his long-time experience in the industry, Rudi has a rare perspective and the ability to step back and identify significant trends and underlying causes. Listening to Rudi speak at the Ventura launch, I was struck by the way he referred to 'micros', and not the more prevalent (at least among neophytes) 'PCs'. Perhaps, like me, Rudi remembers that there were personal computers before the IBM 'standard'.

Rudi spoke about the early days of personal computing, and the then heretical notion that ordinary people could use computers. This radical concept undermined the status and authority of the 'white-coated high priesthood' who attended mainframe computers.

Rudi wasn't just reminiscing, of course. His point was that the ability to program back then was like the ability to publish now. With half of the media in Australia being taken over and the other half engaged in writing about it, it

seems to most Australians that the media are totally under the control of a few barons.

This leads to the belief that publishing, like programming, is the private domain of a select and privileged class. There's also the curious notion that the only way to own a newspaper in Australia is to buy one — certainly with the prices being offered for newspapers recently one must conclude that it might just be cheaper to start a new paper, and that emotion, rather than reason, is at work.

With the availability of low-cost desktop publishing software, the lowering prices of laser printers and the existence of bureaus who will print work for those who cannot afford a laser printer, it is now feasible for anyone to produce publications of quite a high standard. Any special interest group can now present their views professionally, and the quite legitimate concerns we all have about concentration of media ownership are slightly lessened.

Of course, the danger is that we are going to have a rash of dreadful looking publications started up by amateurs in the worst sense of the word, but of course, market forces will soon sort them out. My experience in the publishing industry also tells me that as a group, journalists probably have less business sense than any other, and so many publications will not last long.

But one thing's for sure: the group who will profit most from the advent of low-cost desktop publishing are the people who sell speed-reading courses, because in the next few years, we're all going to be presented with more printed words than ever before.

Eat your heart out, Gutenberg!

LES BELL

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## LITTLE AUSSIE BATTLERS

IT IS ABOUT THREE in the morning and you have just finished writing that nifty bit of software that has taken your every waking moment for the past two years. You've now got the final version, code-named 'True Blue Aussie', and you think it's the greatest thing since the pavlova, or the didgeridoo, even, but you somehow haven't managed to fit a business management course into your life. What do you do now? How do you go about marketing it? What are your chances of success?

Well, statistics are on your side. According to the Information and Services Industries Branch of the Department of Industry, Technology and Commerce (DITAC), there is a good chance that (if your product is not already outdated), you can set up your company, True Blue Software, with as few employees as just yourself and still be able to succeed.

Your *Computer* looked at the October 1986 software industries survey prepared by DITAC and spoke with some of the companies mentioned in an endeavour to find out more about the local industry and just how many companies in Australia are fair-dinkum Aussie made.

When you are setting up your own business, don't let the fact that less than 10 per cent of new companies survive their second year, give you sleepless nights — one-third of the industry is less than four years old, and two-thirds less than six. A mere 1.3 per cent have battled it out for 20 years or more.

The fledgling 100 Aussie 'software' companies registered in 1974, have grown into a flight of over 1200 companies currently comprising the industry. To keep that in perspective, though, we should mention that over 90 per cent of these have less than 20 staff.

Like most businesses, software companies are started with an idea that has become a reality through hard work, ingenuity and expertise developed through trial and error — or just being very observant. Hordes of investment capital and an army of staff just don't seem to be that important.

What is important is the fact that surviving in any market for these firms seems to be a matter of specialising in a particular area. Selecting one of the various niches can be very profitable — as Canberra based FBN Software found.

FBN was started six years ago by Helen and Nick Hammond who set out to prove themselves ready to take on the world. The utility-type software products are developed by Nick, with Helen providing marketing support.

For FBN, like any speciality product developer, the biggest opportunities for growth are in export markets. Thirty-five per cent of the industry has been successful in exporting software packages and a further 20 per cent exported services.

As Helen pointed out, breaking into overseas markets takes a lot of planning and enough confidence in your product to actually put the capital behind costly promotions overseas. Companies take different approaches to exporting, however. FBN goes through the Australian Government sponsored trade shows which provide a collective marketing force. And, going in a group usually bolsters morale when treading new ground.

Other companies such as Automation One and Breeze software (both in accounting software) do their own market research on export potential. Gary Landers from Breeze added that "the Australian market is tough and creates hardy companies which can offer more to the overseas markets."

According to government figures our software industry is growing at 50% per year and projected export earnings are around \$100 million for this year. Sounds healthy — but how much comes back home?

Survey results showed that the big winner in exports was software for micros, growing at 100 per cent annually. But this area is domi-

nated by foreign-owned companies to the tune of 95 per cent with only 5 per cent Australian. Public Information Remote Computing Services, which includes Viatel and public access databases, was an equal winner at 100 per cent growth, proved more even with a 50 per cent split between overseas interests and home involvement.

The alarming side to the run down on the industry's characteristics was that the fastest growing sectors of the market were dominated by overseas interests, while areas such as software services, systems integration and remote computing bureaux — with growth rates of 10 to 30 per cent — appeared to be left to Australian-owned concerns.

As True Blue Software would soon find out, to get to the big money usually means repeating the David and Goliath routine — it's not impossible to win, but the Davids need to be sure their stones are on target. There's still time to practice slinging, even though the industry world-wide is increasingly dominated by the multinationals — there'll be a need for speciality software for some time to come.

As True Blue would discover, just because you've got the greatest little software package, doesn't mean immediate success. The DITAC survey revealed that many small firms reach a stage very quickly where financial support means the difference between exporting or just another liquidation.

AED Systems, who are looking for software developers for their range of 'super' micros, took the plunge into the share market last year. For the six-year-old company it was a big plunge, but very necessary to continue research and development. As Wayne Wilson, one of the directors, pointed out, "We are a multi-million dollar concern at present but this year will hopefully see us double that. But, most of the money that one gets is usually put back into research and development."

Various government funding schemes do assist fledgling companies. But, as many companies have been saying for the past year, the government is only partly protecting and supporting the local software industry. Calls from such people as Wayne Wilson, have been for the government to eat its own words and buy Australian instead of spending vast sums on 'foreign' products — both hard- and software.

The call was echoed by Pulsar Electronics' Phil Delacretaz who maintained that the government had done all it could with the assistance schemes and that the only beneficial action left was to buy from the local market. "The government has been very helpful for us, especially the Victorian government which gave us a \$100,000 loan when we needed to expand. But, they now need to *buy* local products."

While the majority of software companies are still centred in NSW (with 375 companies registered) and Victoria (276), there has been a general march on Canberra with 115 companies setting up outlets there to facilitate better communication with government departments.

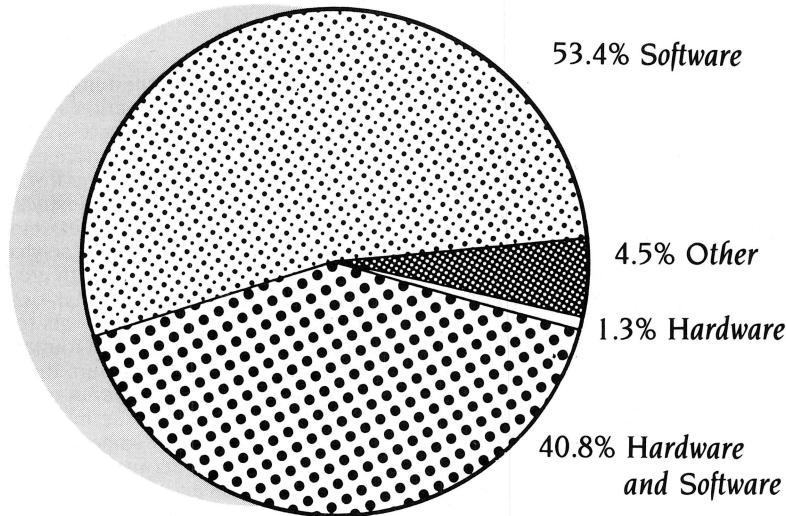
So what is True Blue Software going to do? Well, obtaining working capital, from whatever source, is the most important step. The most common form of finance is an injection from the ever-hopeful, investing shareholder; next, the proprietors themselves provide the money with yet another mortgage on the house. Credit is another common form of finance — trade suppliers provide about 10 per cent of 'external finance' — that, incidentally, is about the same as the amounts raised through personal loans ("from a *person* not associated with the firm").

For True Blue Software — the areas which seem to be heavily catered for are accounting, financial management, database management, and distribution, so look to new paddocks.

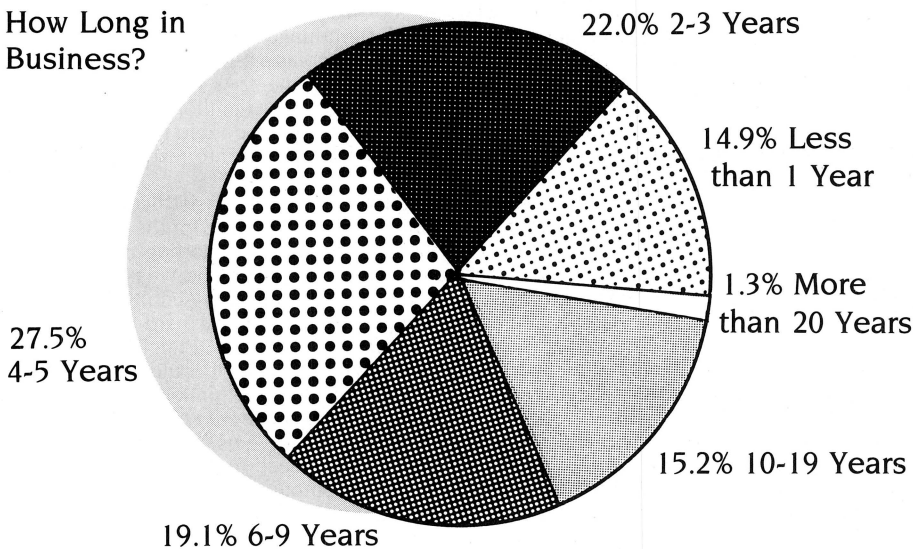
While we discuss the local industry specifically, we must not forget that it can't be isolated from the rest of the world — and the influence of new applications and the latest technology to come out of the US, Japan and Europe.



## Primary Business of Survey Respondants –



## How Long in Business?



## Profile

To give us a clearer picture of the local happenings in software, we spoke with a variety of companies, looking for their particular secret of success.

One of the most successful companies in software has been Typequick — an excellent example of a company specialising in one product and becoming the best in the field. Typequick was developed in 1982 to provide the quickest and easiest form of learning on computers possible. As company director Noel McIntosh pointed out, the product is extremely successful with clients such as Telecom, OTC, Ford,

Boeing, the Department of Defence, and TAFEs all along the east coast of Australia. The Japanese market has been cracked (with the aid of an export consultant) and IBM are marketing the product under their own logo.

One company which has proved popular with schools and clubs is CAZ Computer Services — one of those rare survivors that began in the seventies. The company manufactures MAZE, an MS-DOS accounting package for schools, which also provides timetabling, and, also for schools, Payroll. The latest package from CAZ is MINE which provides accounting

for mineral exploration companies. Other packages include Club Control for the club industry, GENI, an accounting package, and ACID Register, designed for IBM standalones.

Also in the accounting arena is Custom-made Software — one of the many companies in this highly-competitive sector of the market. For Geoff Lewis, the highest acclaim his company could get was to have BHP buy his payroll package, Pay-Back. Custom-Made also supplies Cross-Cheque, a cashbook package, CASEG, a medical accounting package, and the unique Letter Magic package.

Letter Magic was released in September last year and provides a blend between wordprocessor and database functions. Geoff writes his own programs after having had considerable experience as a programmer for Sigma Data and working on micros as a hobby.

The building trade appears to be getting into the act with Lawson Banner Computers doing quite well through their Tradesman package. The package provides invoicing, costing and various other functions specific to the trade. The packages can be tailored to suite various trades such as plumbing, auto electrical, contract cleaning, brick laying and so on. Masterminded by John and Sue Spencer, the creators of Accounting I, the package has tremendous versatility.

Then there is Software Underwriters, an accounting software firm which produces CORE, a debit credit, invoicing, sales tax, transaction oriented single menu package for multi-users.

Another one for accounting and a popular company with franchises, is Automation One. Having only been registered last June after a stint with Parity, Automation One provided an accounting package called Commercial Business Application for management and manufacturing. After selling 1,000 sites in a year, Automation One is confident enough to be looking at exporting to Singapore, Hong Kong, Malaysia, Thailand and the UK. But according to general manager, Chris Cleary, the local market will still keep them busy as it is generally untouched in their particular area.

So — the Aussie battlers are not only surviving, but many of them are growing into multinationals themselves. And no one is predicting a slow down in the demand for software — speciality or otherwise. □



# FRAMEWORK II

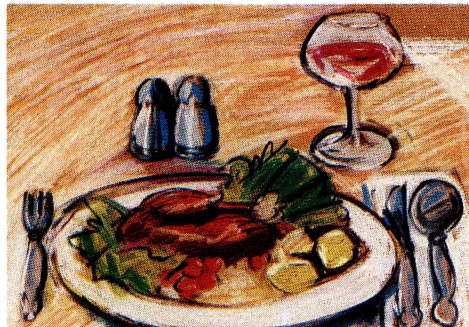
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convenient viewing angles. Not just a few.

Of course, the Toshiba T1100 PLUS does have a few things in common with the IBM portable. Like complete IBM compatibility. And two built-in 720K 3.5" disk drives. It's just that it has these things in a smaller, lighter, faster, more portable, more affordable package.

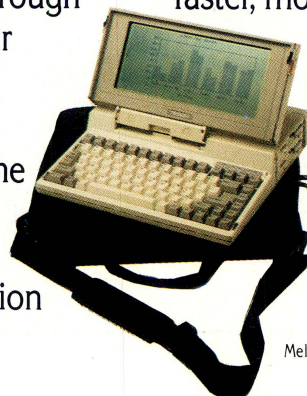
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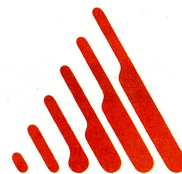
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### **RULES & CONDITIONS**

1. Instructions on how to enter and prizes form part of these conditions of entry. 2. Entries close last mail 31 August, 1987. Winners will be notified by mail and their names published in "Your Computer" magazine October issue, 1987. 3. This is a game of skill and chance plays no part in determining the winner. Each entry in categories A, B and C will each be individually judged in accordance with the stipulated criteria and instructions. The judging will be done by a panel of industry experts selected by the promoter. The judges' decision is final and no correspondence will be entered into. 4. The promoter is Ashton Tate Pty Ltd, Unit 2, 80 Berry Street, North Sydney, 2060. 5. Category A and B can only be entered by owners of Framework II. Category C may only be entered by non-owners.



## A PSION OF THE TIMES

From across the seas comes a story of high-tech criminals experiencing the ultimate lockup for not knowing enough about the computer they were using in drug deals.

As reported in *New Scientist*, the British journal of science and technology, the heroin smugglers found that a little knowledge proved fatal when they were apprehended with \$100 million worth of the 'merchandise'.

Having taken a modernistic and farsighted approach to their

work, the gang decided to cut down time and improve efficiency with the purchase of a pocket computer (a Psion Organiser II) to store their contacts and clients.

When the police swooped on the gang, the ring-leader, Paul Dye, tried a last ditched effort to elude incarceration by erasing the potential evidence from the computers' memory. Amongst jeers of 'It won't do you any good, I've erased everything', the police swung in the computer experts to open up the secrets which were still in there.

For the unlucky Dye, having too-little knowledge of computers was his downfall. The supposedly erased information had just been shunted into a semi-permanent, programmable read-only memory cartridge which was retrieved by programmers from Psion's manufacturers in London.

Dye hadn't realised that the only way to erase the data permanently from an EPROM cartridge was to strip off its protective lightproof seal and expose it for 20 minutes to powerful ultraviolet light. □

## THREE BIG GUNS

The world's three biggest industrial guns, America, Europe and Japan, fired a broadside for optical disk standards recently, when they announced agreement on the basic specifications for a family of 130 mm optical disk drives and media in a sensible effort to establish interchangeability.

The agreement between Alcatel Thomson Gigadisc Corp of France, OSI, Laser Magnetic Storage International (US), Philips and Dupont Optical (Netherlands), and Sony (Japan) is con-

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- Small, fast kernel — Full Unix System V optimised for speed on micro-computers.
- Xenix has been installed on more microprocessor-based computers than all other UNIX based operating systems combined.
- Expanded and improved documentation.
- Xenix is full UNIX system V, only better.
- Xenix has superior multi-tasking design.
- Xenix is tuned for the micro-computer environment.

### WHY BLUE SKY?

- We have been in business since 1978.
- We have been involved with computers since our inception.
- First Xenix sold in 1982.
- We know Xenix.
- Some of our customers include: NCR — Health Commission — Commonwealth Bank — Westpac — Telecom Australia — Philips — TAFE — WICAT — Dept. Science & Technology — University of New South Wales — University of Sydney.

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8 MPC  
8 RS232 Ports with high-speed intelligent controller and Xenix Driver.

	CP/M-80	CP/M-86	PC DOS	MSDOS	Xenix V.40	Xenix V.45	Xenix V.286
T/MAKER III integrated office	•	•	•	•	•	•	•
MULTIPLAN spreadsheet					•	•	•
INFORMIX relational database					•	•	•
LYRIX word processing					•	•	•
LEVEL 2 COBOL Ansi 74 standard					•	•	•
FORMS 2 Cobol Development Tool					•	•	•
ANIMATOR Cobol Symbolic debugger					•	•	•
C-ISAM					•	•	•
IBM MAINFRAME COMMUNICATIONS					•	•	•

### NEW NEW NEW NEW

SCO PROFESSIONAL 1-2-3							•
SCO UNIPATH SNA						•	•
FOX BASE						•	•
FOX BASE RUN TIME						•	•
XENIX NET							•

### HARDWARE

- Winchester disk controllers for S-100, IBM PC, stand-alone.
- 8 Port intelligent communications board for S-100, IBM PC, IBM AT.
- Streaming tape back-up for Xenix.
- Statistical Multiplexers 8-16-24 ports with error correction.



sidered to be a basis for further development of a full data interchange capability between the drives and media.

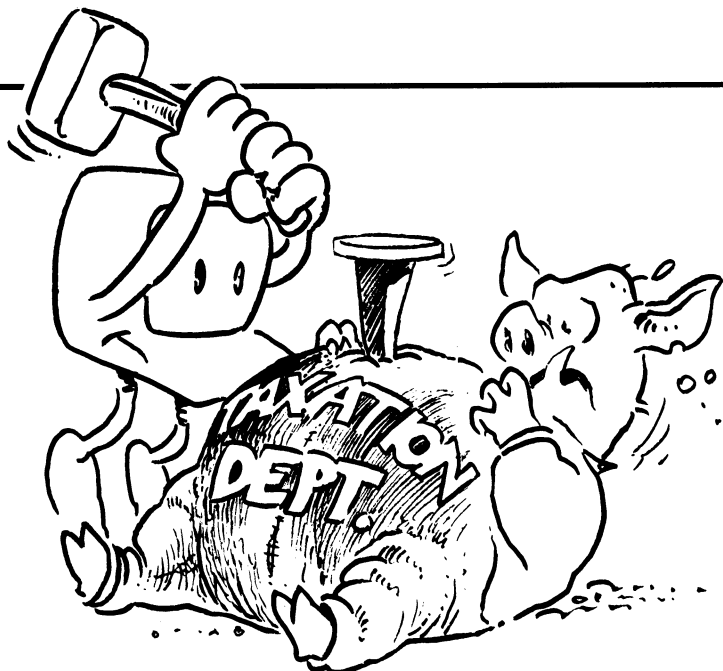
The new standard may come in for considerable resistance from IBM who have stuck to their SNA standard and have been battling with OSI for acceptance in world markets.

OSI and its partners in the new standard have stated that their objective is to gain a wide acceptance and are committed to support the effort throughout the industry.

Based on a sample servo format, the standard guarantees good adaptability to a broad range of optical media based on different technologies, including read only, write once, and erasable media.

To gain acceptance to other markets the format will have to go through the rigid testing metered out by users, but this *triple entente* has added a modulation code and error correction system which — in an effort to appease users — is designed to match the properties of the optical recording media and the sample format.

For those looking for extras, there is a 4/15 modulation code, based on differential detection and a Reed-Solomon product code for the error correction system. □



## BEAT THE TAXMAN WINNERS

SIX TAXPAYERS, WHO also happen to read *Your Computer*, are going to smile as they do their tax returns this year with the powerful accounting packages they've won! (You must be a mercenary lot, because we received hundreds of entries for the Beat the Taxman competition that ran in our November and December '86 issues.) After the deluge of entries, Mr P Evans-Leigh of Lynwood WA floated to the top as the clear winner. The judges later commented that the cartographic and vocabularic skills displayed by the entrants demonstrated a keen interest in winning (*weren't a very quotable lot were they?*).

Mr Evans-Leigh will have the choice of one of three complete

accounting packages, while Garry O'Brien of Carine WA won the chance for second choice. Linda Donnadieu from Kogarah Bay NSW has the 'chance' for third prize.

The three prizes the winners are choosing from are PADMEDE, a full accounting system from *Personal Computer Software* that includes Trade Debtors, Invoicing, Inventory, Trade Creditors and General Ledger modules — valued at \$946. Or *Integrity Business Software's* ASCENT system: 'a single-user' package for an unlimited number of businesses' that includes Accounts Receivable, Accounts Payable, General Ledger, Cashbook and Inventory Stock Control Modules — valued at \$4640. Or *Power Software's* flexible package of the same name that provides a Debtors Ledger, Credits Ledger, Stock

Control module and a General Ledger module with multiple cashbook facility — \$3995.

Each of the three winners will receive expert help with installing their chosen package and changing from their current system, from chartered accountant Dan Lawrence (who's also our resident expert in accounting software).

Fourth, fifth and sixth placings went to Trevor McGowan of Margaret River WA, John Pritchard, Sydney NSW, and I Ridge, Balwyn Vic. These placegetters can choose from a Padmede Debtors module (value \$390), an Ascent Accounts Receivable module (\$950), or a Power Software Debtors module (\$1,395) — more than enough to give them a chance against the taxman and get them started on the road to computerised accounting. □



## FRAMEWORK II "DOING MORE FOR YOU" ENTRY FORM.

It's easy to enter! For further details or an entry form, simply visit your local Ashton-Tate Dealer OR fill-in this coupon:

Name \_\_\_\_\_ Company Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

CATEGORY OF ENTRY — Tick appropriate box:

- A. "Most Interesting Use of Framework II." ☐
- B. "Most Innovative FRED Application." ☐
- C. "What I'd do with Framework II if I had the chance." ☐

  
ASHTON-TATE

- Those entering Categories A or B will be sent one of the three excellent Framework II packages in the Decision Maker's Series.
- Those entering Category C can obtain a free Framework II Sampler by submitting this coupon to your local Ashton-Tate Dealer.

Enclose this entry form together with your submission to: **Framework II "DOING MORE FOR YOU"**  
P.O. Box 21, NEUTRAL BAY, 2089.

Entries close on August 31, 1987 and judging will be done by a panel of industry experts.



## ALL IN A-GRUENMENT

The Federal Government has adopted the recommendations from the Gruen Report on anti-dumping which could see major changes to market strategy for local industry.

What appears to be the most beneficial recommendation of the Report, provides for the establishment of a tribunal to make recommendations to the minister on anti-dumping or countervailing actions.

It's hoped the recommendations will provide the government with a constant update on any problems in the industry and gain the legislative response necessary to protect our fledgling software industry.

Provisions have been made for anti-dumping measures to cease after three years' application which allows time for local companies to compete with imported products to gauge the market response, and to modify the local products to make them more competitive before the time expires.

A safety catch has been set which allows a fresh application to be entered by the local companies if dumping will still swamp the local creation.

The Government has also accepted the recommendation not to have a broad 'national interest' provision in the legislation while also retaining the provision which allows the use of constructed 'normal values' — used to determine if dumping is, in fact, taking place — by using an estimated manufacturing cost plus a 'reasonable' profit. □

## AUSSIE POST STOPS DEMANDS!

The day of that final *demanding* notice arriving through the post, could be a thing of the past with the introduction of the first nation-wide electronic counter service payment system.

Melbourne is the first beneficiary of the system with over 400 post offices having the network installed, while Sydney is set to receive the upgrading later this year with more than 500 sites to be networked together.

The network has been designed by Victorian-based Fortronic Technology in conjunction with Australia Post. The team has concentrated on creating a unique multi-functional design with a wide geographic spread.

According to the general manager of the Electronic Postal Services Department, Dr David Smyth, the system would help customers by providing a wide range of bill payment and banking services at thousands of postal offices throughout the nation. The system is multi-functional and can process significantly more information than traditional EFTPOS type terminals used by supermarkets, petrol stations and so on.

The terminal will be part of a network being built to Australian Post designs by Unisys, the new computer firm resulting from the merger of Burroughs and Sperry. Unisys is also supplying other hardware, including network control computers and almost all software for the system.

The system will also be used by the Commonwealth Bank which has had a continuing service provided through Australia Post since 1912. The ECS network will cater for both passbook and plastic card accounts such as keycard and mastercard.

Telecom will be using the network to collect revenue through its bill payment service provided through the post offices. □

## TWO FOR TEA

Australia's largest research organisation the CSIRO, and the Australian Trade Commission (AUSTRADE) will work together to enhance Australia's technological image overseas and to boost the nation's export performance, particularly in technology-based products.

The drive will be to create more effective marketing through the CSIRO's marketing arm, Sirotech, which will link local research and development with the quango's international marketing priorities.

The two will be working in areas where research will help to overcome specific export barriers while also carrying out market research on key technological fields. □

## TELECOM TELLS

Telecom Australia has issued a strong warning to industry to take heed of the technological obsolescence in the telecommunications sector of business.

According to Telecom, in a submission to the Langmore inquiry into Australia's public infrastructure, obsolescence in the ever-important telecommunications side of business may cause a downturn in Australia's economy. 'Over the next two decades, the merging of the technologies of computers and communications will re-shape the social, industrial and business processes in the world.

A broad range of new services will become technically feasible and social, industrial and business needs will change to reflect what is possible.'

The blend of industries mentioned above has allowed massive expansion and growth in the information industry. This has revolutionised the way people live and do business all over the world. Soon, survival will be a matter of technological competence. □

## BIG BLUE AND BIG BUCKS

As we all expect from IBM, they are the first to break through the billion dollar mark amongst computer companies in this country. According to Compass research executive, Adrian Wood, IBM's revenue will top \$1.15 billion this year.

Predicted revenues (all in millions, of course) for the Australian operations of other major players are — Unisys \$330, DEC \$295, Wang \$240, ICL \$190, Prime \$110, and Data General \$65. □

## SKIMPING ON INTELLIGENCE

The Federal government has slashed 60 per cent off the funds allocated to the Machine Intelligence Project, a major artificial intelligence (AI) research project.

The Department of Science has cut the Project by \$210,000 with only \$50,000 to be split between Melbourne and Monash Universities and the NSW Institute of Technology.

Leading industry academics

have slammed the cuts as being short-sighted when such countries as Sweden and Japan are still spending up to A\$3 million each on similar projects.

Barry Jones, Minister for Science, defended the cuts explaining that artificial intelligence is being funded through the Australian Research Grants Scheme to the tune of A\$261,000.

Some industry sources believe that this cut follows the political line that there is no immediate return (and no votes in by-elections) from research. □

## FLYING HIGH TO

In keeping with their "exciting new image," Australian Airlines announced that a new office automation system is being introduced into its branches throughout the country.

At a very cost-conscious \$1.5 million, the nationwide system will be providing instant information in 33 sites with integrated office automation, networking and complete communications between mainframes and personal computers.

The system is being supplied by Brisbane based The US Connection which will be using a system from Altos Computers of San Jose, California (*Can't even companies with 'Australian' in their name buy Australian?*) the airline's manager, Bill Chatham, explained that 'at each branch, systems will be connected by a local area network. Each will eventually be linked to an Australia-wide administrative network and form a complete distribution network.'

The system, which was designed to train and utilise existing staff, has been set up in Victoria and will be progressively introduced throughout all branches. □

## \$13,000 LABTAM WINNER

Just *subscribing* can be rewarding! That's what Andrew Barton of Glen Waverley, Victoria, found. He was the lucky new subscriber to *Your Computer* who won \$13,000-worth of Labtam Computer.

If you're feeling lucky, check out the latest subscription offer on page 147. □



# AMERICAN GRAFFITI

BY HOWARD KARTEN

## SOFTWARE AND PERSONALITY

SOME DAY, COMPUTER scientists will become aware of something that computer users have known for a long time: software and personalities both suffer from the same fault — they're all individuals.

But individual personalities are important. Here's an example of that importance in bringing forth a product: FidoNet is a way of linking the world's Fido bulletin board systems. Under FidoNet, Fido BBS systems worldwide will be able to share information with each other easily and at moderate cost.

Essentially, it's one person, Tom Jennings by name, who is the driving force behind FidoNet. And unlike some others, Jennings is working essentially as a one-man missionary, without megabucks backing him.

There are plenty of other examples. A visionary named Bill von Meister was the push behind Telenet, the US's first value-added network, and later, the Source; Roger Summit, currently president of US database company Dialog Information Systems, began as a low-level employee many years ago, when Dialog was first starting out — he had a vision even then. And 1-2-3 really owes its very existence, and success, to the vision that Lotus Development Corp. founder Mitchell Kapor had. In Kapor's case, it really was almost a religious vision — his experience creating VisiCalc produced an idea, a near-vision, about how useful an integrated product could be to users.

Another aspect to this whole area is the personality which a particular piece of software presents to a user. That's related, of course, to the personalities of the software's authors, developers, business managers, and

everyone else involved.

For example, in the pre-micro age, it wasn't especially unusual to see diagnostic and error messages that were cryptic or downright hostile. D37 or DATE MUST BE FORMAT MM-DD-YY, DUMMY were not unusual messages to find on a listing or console; the user then had to figure out what these meant, and how to correct things to avoid the message next time around.

These messages may well have been an extension of the programmers' personalities. It's a widespread belief that certain types of personalities are attracted to certain professions. For example, it seems difficult to find any joke about lawyers that portrays them as anything but rapacious and shark-like (see the Lotus story below); and many doctors nod in recognition at jokes that portray surgeons as macho but not terribly thoughtful; psychiatrists are overly thoughtful and shockproof, and so on. If it's true that many a truth is spoken in jest, perhaps we ought to be grateful that there are not many jokes about programmers — yet.

Judging by some of the workings of minds that I've seen in travels around the computer world, it's an eminently reasonable proposition that software reflects the author's personality. Just as a book or memo reflects the author's personality, beliefs, quirks, why not software?

One program listing I saw years ago, for example, was heavily annotated with jokes and hearty good humor. Another one was heavily laced with scatological observations and speculation on the ancestry of the programmer's managers. In the IBM mainframe world, an abnormal end-of-job condition is signalled by something called an SVC 13 ABEND. Programmer folklore holds that '13' was assigned because of its traditional 'bad luck' connotations.

Programmer personality is manifested in the user-programmer interface in many other ways as well. Just as some individuals are surly and others playful, so, too, some software is charming and inviting, and other software bristly and unforgiving, with terse responses.

Of course, in a sense, none of this is really terribly surprising; it's just that we often overlook it because of the corporate origins of most software and hardware. There's probably a natural human tendency to ignore or forget the contribution of individuals on any product that carries a corporate escutcheon. Even though most products today are developed or designed by teams, the team members and leaders all contribute their personalities to products.

Another aspect of this is that creating software is essentially a solitary, non-social pursuit. That undoubtedly accounts in part for some of the hostility and clumsiness we see in the user-software interface. (If you've ever seen any of the documentaries about computer jocks, or observed a group of them in a social setting, you know what I mean. Somehow, the character of the interaction is... well, *different*.) As more non-hackers enter the fold, we'll see more gregarious software.

The whole concept of software and personality raises about a zillion fascinating questions. For example, what personality differences lead one person to prefer some kinds of software? Do factors other than cost influence whether a person buys an original or a clone?

The inevitable question is, what does it all mean for users, particularly in the future? Today's hackers are tomorrow's software developers; does that mean we'll be seeing truly impenetrable copy-protection schemes in the future? Devilish worm tricks to bedevil unauthorized copiers?

## BYTES

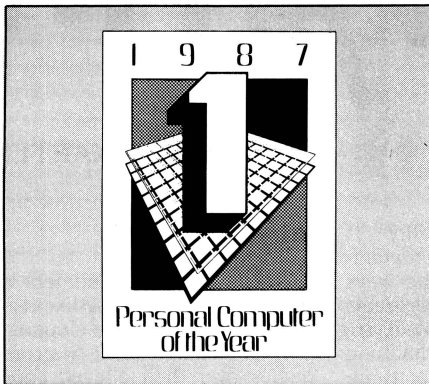
□ In the latest development of the Battle of the Look-Alike User Interfaces, Lotus Development Corp. filed suit against two companies over their alleged copyright infringement of Lotus' property. Lotus charged that a neighboring Massachusetts vendor, Mosaic Software, and Adam Osborne's Paperback Software, both infringed by making look-alike interfaces and screens, regardless of the underlying logic of their products use.

There are several ironies in all this. For starters, Mosaic's product Twin, which is the object of the Lotus suit, was recently advertised at a heavily discounted price by a liquidator, which suggests that Mosaic may be in some financial difficulties. (Vendors sell unsold products to liquidators at bargain-basement prices in order to raise quick cash.) If Mosaic decided to settle with Lotus, or if it went out of business, Lotus might not get the court test it seeks. In the case of Paperback Software, founder Adam Osborne has acquired a reputation as a brash promoter who's quite adept at generating his own (positive) publicity.

Additional ironies: 1) Lotus recently announced a stripped-down version of 1-2-3 intended for college students. The US\$40 product is intended partly to compete with 1-2-3 clones — and will be used by the group (college students) which is thought to be responsible for a good deal of the unauthorized copying that goes on. 2) In the past, Lotus and others have sued users who've allegedly made unauthorized copies. Lotus has recently been moving towards removing copy protection from some copies of its software. (Perhaps some reader can come up with a suitably nasty answer to the question, 'Why did Lotus' lawyers stop suing the pirates?') □



# The Personal Computer of the



**O**VER THE PAST five years the judging panel has chosen what are still some of the industry's most exciting and innovative achievements. But, what's happened to the greats of yesteryear? Some of them paved the way for bigger and better releases, others have become industry standards — then again, some have just plain disappeared.

Look back through those 67 issues of *Your Computer* that are taking pride of place on the bookshelf, turn to each year's PCOTY awards and read the *oohs* and *aahs* caused by 16-bit processors, liquid crystal displays, and Lotus 1-2-3.

## 1983

The first Personal Computer Of The Year Award went to NEC for the most innovative computer. The NEC Advanced Personal Computer was fast for its time, and provided enhanced graphics applications with a new level of excellence. It also introduced dual one megabyte floppies — ample memory for almost any conceivable application, we all thought then.

What happened to the NEC Advanced Personal Computer? It became bigger and better as each new generation of Advanced Personal Computer superseded the old — the APC III offered 20 Mbytes and 5.25 inch drives instead of the old-fashioned 8 inch. The latest offspring in the line, the APC IV, gives us 640 Kbytes of RAM, a 40 Mbyte hard disk, and full AT compatibility with its 80286-8 processor.

## 1984

The following year saw a little lady walk onto the stage and her name was Lisa. For all the new features she offered, you could have almost said her surname was 'revolutionary.'

She brought us the newest look in screen design, with the now-common

*It's that time of the year — we're all busily organising the Fifth Annual Personal Computer of the Year Awards. Les Bell and his Panel of eminent persons have already started putting this year's new releases through their paces in preparation for the Awards in May.*

icons scattered throughout a user-friendly system. A lovely girl she was, with such beautiful features as open plan windows. And Lisa came with her own pet mouse. (Judging by the number of mouses we've seen since then, she might have had two — or are they only clones?)

The most friendly thing about her was that she allowed you to point and she would *do* — no more typing in tiresome, complex, sometimes-forgotten keyboard commands. For the beginner, Lisa was an angel. But as history told, she only paved the way for the Macintosh range.

The same year saw the arrival of another revolution — but this time in the form of a software package called Lotus 1-2-3. So pervasive has 1-2-3 become, that almost every new software release, 'integrated' or not, is in some way compared to it — there are thousands of Lotus user groups around the world, and a hundred imitations.

The ripple effect from the release did much to establish IBM in the small business world, just as Visicalc had done for the Apple range. At the time, the package was heralded as doing things never before thought possible on a PC. Lotus 1-2-3 also showed that an adventurous nature can pay off for the developers.

Revolutionary and adventurous — these are two of the qualities the PCOTY Panel are looking for. (And the industry has yet to let us down.)

## 1985

When 1985 rolled around, we saw the emergence of the laptops and the promise that you would never have to be tied to a desk again. It wasn't surprising that the Hewlett-Packard 110 portable came out tops — it offered giant steps forward in the fields of miniturisation and versatility.

The 110 introduced liquid crystal displays in answer to the design requirements for the 'condensed' size and portability. Much of HP's effort had gone into

breaking new ground in the fields of longer battery-life and improved memory capacity — the two main problems that had kept portables off the market in any great numbers. As an added fillet, the processor performance of the 110 proved faster than the standard-setting IBM PC.

That year also saw software literally take off with Microsoft capitalising on the efforts of Bruce Artwick and giving the world Flight Simulator II. The game, apart from being an *unusual* winner of the software award, was astounding in its graphics representation of a typical horizon and in the interaction between users and the program.

The days when only trainee pilots were given the pleasure of flight simulation in multi-million dollar machines, were past; every IBM and Apple pilot now had the chance to *fly*! In itself, the 'game' doesn't provide any great benefit to the user, but Flight Simulator showed the possibilities of detailed programming and opened up an entirely new world of graphics and game applications.

The educational software industry received an enormous boost that year with the release of Typequick, the winner of the Australian Software Commendation Award. The straight-forward approach to learning a keyboard provided the beginner with an easy-to-use tutorial that led them by the hand into the world of computers. Although similar packages were already on offer from others, Typequick was the easiest to learn from and provided sophisticated programs to check the user's progress.

Typequick became the first Australian software product to be marketed by IBM under its own logo — today it's available all over the world and corporate users include BMW, the Ford Motor Company, Hewlett-Packard and Boeing Computer Services. The recent release of a Japanese language version for the NEC 9801 (the biggest seller there) has opened a market



# Year Awards

## WHY THE AWARDS?

THE *Your Computer* PCOTY was the world's first Personal Computer Award. In its five-year history it has achieved an enviable reputation for independence and integrity. The independent Panel of judges are all knowledgeable users and all are exempt from commercial pressures.

The awards have two fundamental purposes, in keeping with their two major audiences —

For the magazine readers — the public at large — the computer industry is continually visible through the media and an increasing involvement in everyday life. As the market is catered for and accepts technology into their offices and homes, the marketing activity and competition increases (and the ads get louder!), and this — coupled with the increased complexity of the computers themselves — means that it is more difficult for the prospective purchaser to decide what, if anything, to buy.

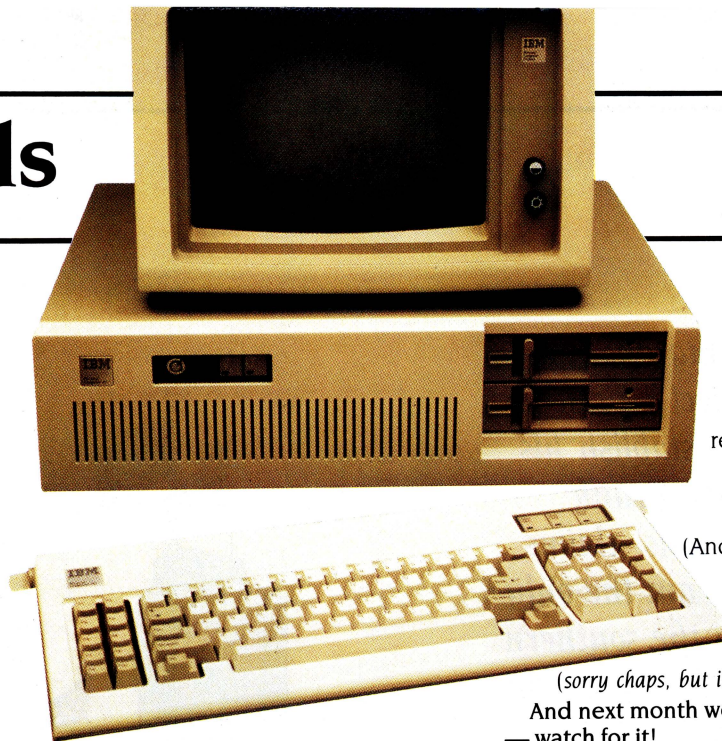
It is therefore an aim of the awards to provide an insight into the most worthwhile product releases over the previous 12 months: which products offer *truly* new features, improved quality, or other *useful* enhancements. The independent assessment of the Award Panel assures that even products with a shoestring budget can stand out purely on the basis of their features.

The second audience for the Awards is the industry — and *Your Computer* is a very real part of that industry. Because computers and their applications are only beginning to enter the logarithmic growth phase, it is becoming increasingly important for all of us to stay informed — and for those new products that are showing us the way of the future to receive the recognition they deserve.

This last-mentioned point is especially important in the Special Commendation for Australian Achievement Section. The Commendation provides recognition and stimulation to a local industry which is surging ahead in overseas markets. At the same time, it is providing us with a growing, ever-more-inventive pool of skills, which we at *Your Computer* can only applaud and encourage. □

that is expected to return over \$8 million in the next three years.

The incompatibility of overseas modems with the Australian communication system, saw DataNetComm provide a winner for the home market with the In/Modem. The modem received the 1985 Commendation Award for the logic behind a modem compatible with both the



1987

The testing, evaluating, and head scratching has already begun — suppliers have polished and delivered the shortlisted finalists. (And YC's office has had an unusually large number of hopefuls wanting to nominate themselves

(sorry chaps, but it doesn't work like that).

And next month we unveil the Finalists — watch for it! □

Australian and American telecommunications systems.

1986

Last year's winner proved to be a surprise from America. Not so much a surprise that the company was IBM, but that Big Blue had come out with the AT — then the fastest computer on anyone's desk. Over the past year, the number of ATalikes released has been phenomenal, and the advertisements often read like speedway blurb as processor speeds become faster and faster.

Although there were already fast computers around, the AT proved to be the impetus that the industry needed to get going again and get going *fast*. With all of the new releases last year, this year's product has a hard time keeping up with what is the latest vogue (or just plain sensible).

In last year's software arena we saw the emergence of intelligent programs with the Q & A software package. It's a program of surprising power that points the way for further development in natural-language front ends for database systems.

In the Australian Hardware Commendation section, Labtam took the award with a well-thought out stride into the world of Unix with the 3015/V32. This year the machine became smaller, but still more powerful with 171 Mbytes storage and two Mbytes of RAM; and the price has gotten smaller too — it's down from \$50,000 to \$26,910.

1986 also saw the release of Intouch Computing's The Complete PC Tutorial, which offered a new concept in teaching — it instructs in DOS usage and programming, while still leaving DOS and other programs active on the PC. (Do Aussies have a flair for writing educational software?)

## THE JUDGING PANEL

SELECTING OUR award winners is no trivial undertaking — and neither is choosing the Award Panel. To ensure that our personal foibles and prejudices do not influence the decision, we select a panel of judges who are not only experienced, but independent.

As in previous years the Panel comprises of five members —

**Dr John Barrett** is a lecturer in the School of Education at Macquarie University and has been working with micros since 1969.

**Les Bell**, managing director of Les Bell and Associates and Consulting Editor to *Your Computer* magazine, has been writing about, building, programming and using microcomputers and personal computers since 1975.

**Dr Robert Graham** is head of the Department of Finance at the New South Wales Institute of Technology and is a leading expert on the use of personal computers in a corporate environment.

**Len Rust** is the managing director in Australia of International Data Corporation, a major US marketing consultancy company specialising in the data processing and communications industry.

**Peter Zucker** is the former editor of *PC World* and is now writing on various aspects of the industry. Paul has spent six years in the industry working on micros and takes an active interest in user groups.

The members of the Panel have between them close to fifty years' experience with personal or microcomputers and should have at least some idea of what makes a good personal computer! They also have almost one hundred years' experience with computers in general! □



*When writing about a technical subject an author has to first establish his credentials. Frank Linton-Simpkins' claims are twofold: 'I am the only adult male in the southern hemisphere who hasn't got an item of software that I feel is saleable in such numbers as will make my fortune and, secondly, I am the only man in Australia with a hyphenated surname who doesn't sell life insurance.'*

**I** HAVE ALSO BEEN writing programs for computers since 1956 using just about every mainframe Operating System on the market and in everything from machine language to APL. I shun Algol, spurn Pascal, refuse to run away to C, think that Unix is a great idea if only it comes into wide usage and am the proud owner of a gold pick presented to me by Lionel Singer.

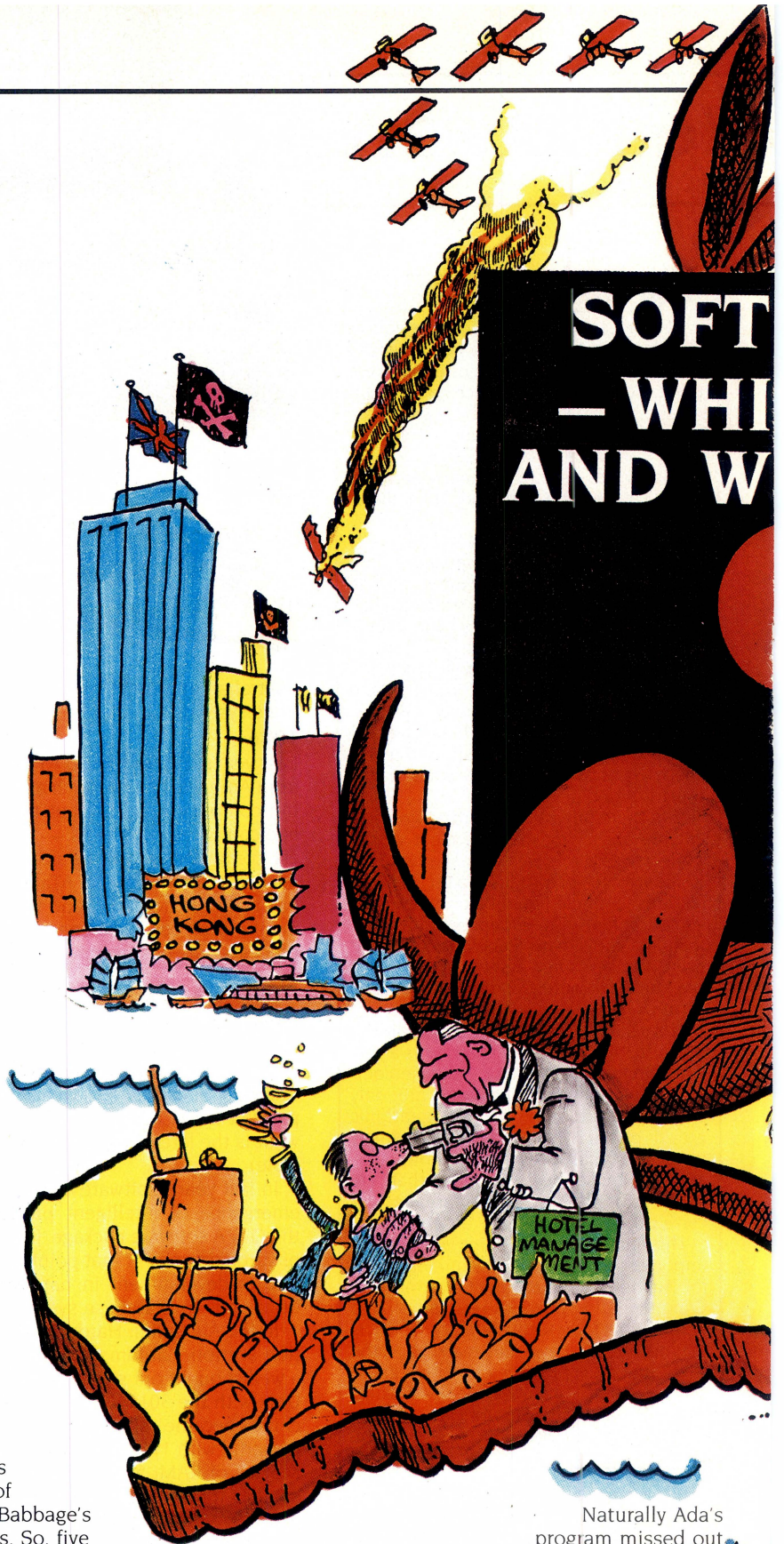
Software: the definition of software is difficult. It's a mite like art, no one can define it but everyone knows what you mean, or that is everyone probably has their own discrete definition that doesn't exactly match everyone else's even though this won't be openly acknowledged.

From that you can see that there is a measure of confusion about the real meaning of software and its origins. For example, if pressed, most people would say that until the arrival of the computer age with the Ultra machines that cracked the German military code in the '40s, there was no such thing as software. But they would be rather in error.

Around about 1820 Countess Ada Lovelace (I wonder what the Count was like and what ever happened to him?), wrote a program to perform certain statistical

functions on one of Charles Babbage's machines. So, five years after the battle of Waterloo and six years after Sydney Hospital was founded, we see that a utility program was written even though the mechanical computer it was written for never arrived, Countess Ada's statistical program qualifies for the first software award.

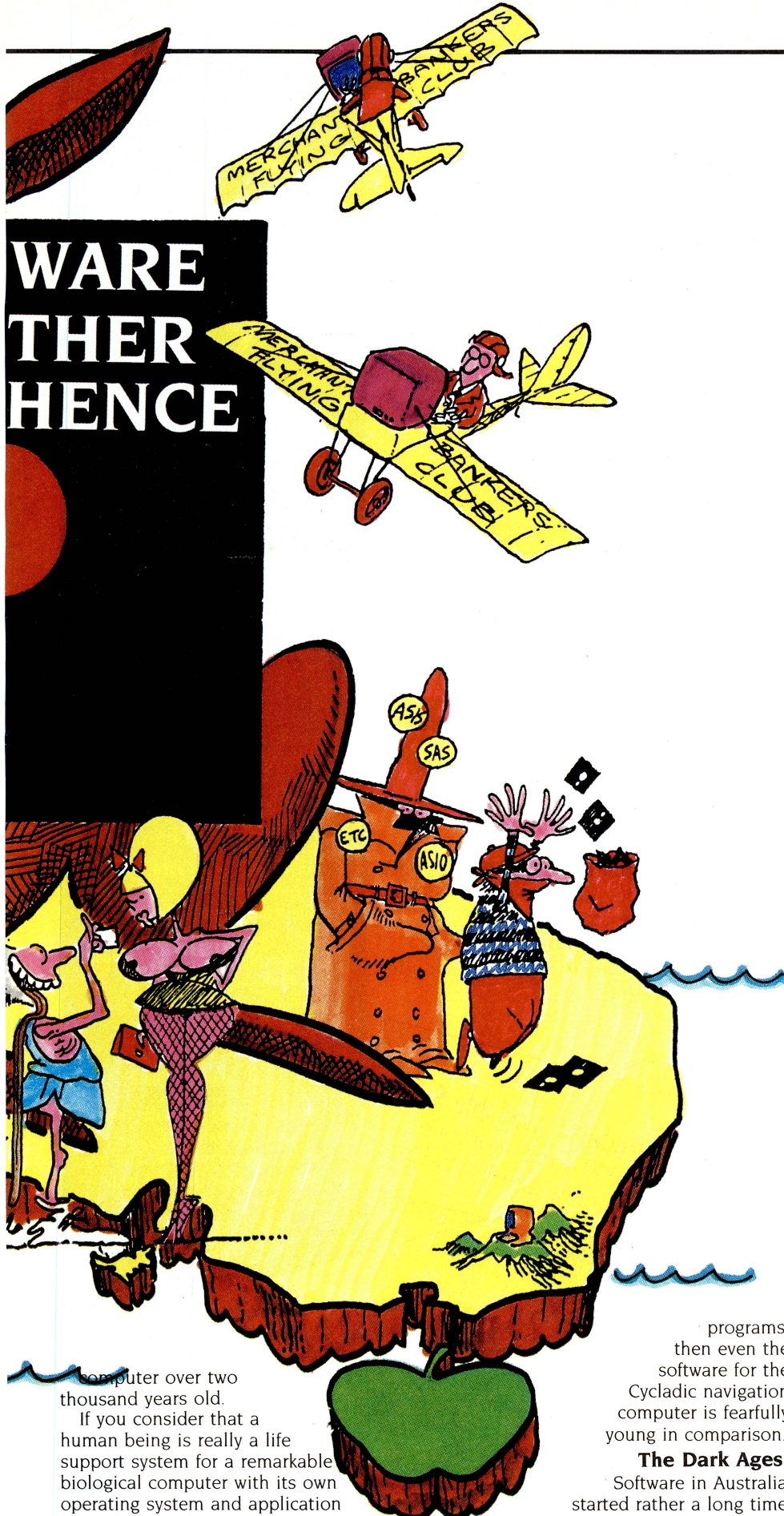
Naturally Ada's program missed out heavily if we assume that some sort of software must have been written for the celestial navigation computer, which was discovered by accident when an artifact recovered from the sea near the Cyclades was x-rayed. This revealed that the artifact was a mechanical celestial navigation



**SOFT  
— WHI  
AND W**



# WARE THER HENCE



computer over two thousand years old.

If you consider that a human being is really a life support system for a remarkable biological computer with its own operating system and application

programs, then even the software for the Cycladic navigation computer is fearfully young in comparison.

## The Dark Ages

Software in Australia started rather a long time

after Countess Ada. It began in what has been called the dark ages of computing with a machine called CSIRAC. The CSIR part came from our beloved CSIRO and the AC from 'Automatic Computer' as in EINIAC, ADVAC, ADSAC, BINAC, and the now sadly defunct, UNIVAC.

CSIRAC was the fourth electronic digital general purpose computer made and initially it worked for the Radiophysics division of CSIRO. While the exact date of commissioning is subject to some argument, it was well-before Sydney University's SILLIAC (1956) and the University of NSW's UTECOM (also 1956). In fact CSIRAC's design was nearly complete 10 years before SILLIAC, a locally adapted version of the University of Illinois' ILLIAC I, was shown to the public.

CSIRAC was the result mainly of the work of a man called Trevor Pearcy, a UK-born Radar researcher who currently uses his expertise to guide the students at the Caulfield CAE in Melbourne. Just about all the software for CSIRAC was either utilities or specific applications; none of it was usable, except in principle, on other machines — CSIRAC was unique.

It even pioneered a sort of virtual storage system by interleaving digit streams in its delay line storage units. CSIRAC and its software would have little direct commercial application. The first commercial software didn't arrive in Australia until 1959 when NCR installed a rather odd computer called an Elliot 405 at its Sydney office on the historic corner of York and Barrack Streets in central Sydney.

The first piece of NCR-Elliott software that one encountered was called 'Fred' — Fred's only purpose in life was to feed in another program called 'George' which translated mnemonic codes into machine language. The Elliot 405 was a gigantic machine which ran on valves: the Preventative Maintenance doctrine required the hapless engineers to replace 25 per cent of its units each day before the operators got their hands on it. As part of its charm, it had 512 words of store arranged in sixteen one-word delay lines and the rest in 321, sixteen-word nickle delay lines. There was a magnetic tape subsystem which had four drives operating at 8192 words per minutes each and one 16,384-word magnetic disk (fixed).

This curious machine also had its words scaled to the power of  $2^{31}$  and was used as a service bureau machine. Later we got a line printer which operated at 600 lpm and 120 characters to the line. To make



## HI-TECH C COMPILER

The HI-TECH C COMPILER is an all Australian high performance C compiler for the Z80 and 8086/8088 processors. Now in use at thousands of sites in Australia and overseas, it combines an excellent user interface and diagnostic messages with smaller, faster generated code than any other compiler. It runs on CP/M-80, PC-DOS, MS-DOS, CP/M-86 and Concurrent CP/M. It allows for the generation of ROM based code and comes with a macro assembler, linker and librarian. The 8086 compiler supports large and small memory models and the 8087 maths co-processor. A cross compiler running under MS-DOS and producing code for the Z80 is also available.

<b>Prices:</b>	<b>8086 Compiler for MS-DOS or CP/M-86</b>	<b>\$300.00</b>
	<b>Z80 Compiler for CP/M-80</b>	<b>\$250.00</b>
	<b>Z80 Cross compiler for MS-DOS</b>	<b>\$300.00</b>

## SNAKE

SNAKE is a utility for MS-DOS functionally equivalent to the Unix MAKE command. It automates the recompilation of any modified modules of a programme. This is an indispensable tool for any serious programmer using C or any other compiled language.

<b>Prices:</b>	<b>SNAKE</b>	<b>\$89.00</b>
	<b>SNAKE + BTree + ISAM</b>	<b>\$249.00</b>

## BTREE & ISAM

BTree is a b-tree based index and data file manager supplied in C source code form. ISAM is a higher level set of routines providing powerful database management, also in C source form. ISAM requires BTree.

<b>Prices:</b>	<b>BTree</b>	<b>\$119.00</b>
	<b>BTree + ISAM</b>	<b>\$179.00</b>

## MACRO ASSEMBLERS

HI-TECH Software has macro assemblers to run under MS-DOS or CP/M for the following micros: 8080, 8085, 8086, 80186, Z80, NSC800, 6800, 6801, 6805, 6809, 6301, 6303 and 64180. All use standard manufacturers mnemonics and come with a powerful linker librarian and object code convertor. The assemblers absolute or relocatable code and Intel and Motorola Hex formats are supported.

**Price: \$250.00**

## A BOOK ON C

"A Book on C" by Al Kelley and Ira Pohl is an indispensable guide for every C programmer, whether a beginner or an experienced professional. An excellent introduction and a comprehensive reference to the C language, it has many examples and working programmes.

**Price: \$34.95**

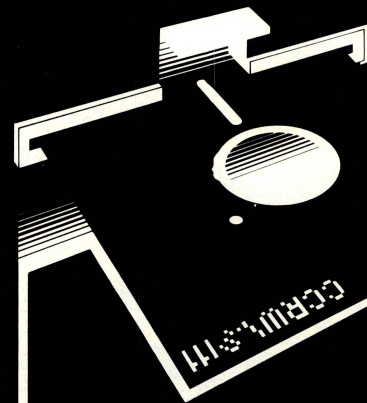
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the lives of the software people sheer hell, the printer had to be driven off-line via those slow tapes.

#### **Piano Man**

There was a brilliant software man on the NCR staff who wrote a program that would allow a skilled operator to use the Elliot 405's loudspeaker system and the 32 keys on the console to play a sort of reverse piano with only rather less than half the normal keys.

Only this software man, one Ken Barham, was able to master the reversed keys and his inspired versions of various national anthems and non-conformist hymns remain in his audiences memories still.

Despite its limitations, the Elliot had lots of application software written for it — even a payroll program for the Snowy Mountains Authority. The SMA also had a computer called SNOCOM which was a solid state version of a pre-dawn mini called the LGP 30.

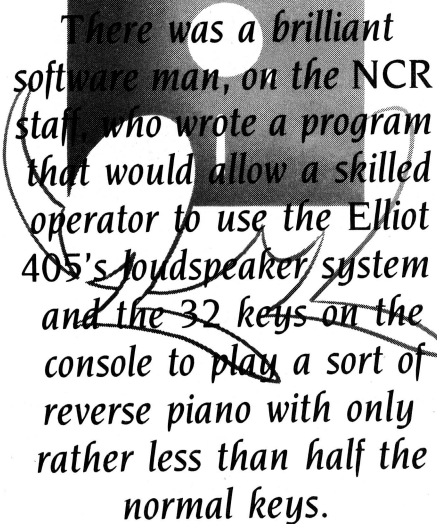
SNOCOM had 1024 words of store and John Bennett, later Professor Bennett of Sydney University's Computing Science school, wrote a system to run on SILLIAC to simulate the SNOCOM CPU and its store, SILLIAC also had 1024 words of store, albeit each 40 bits long.

Apart from the Bennett-SNOCOM simulation much of the early computing software in Australia was of the program assistance kind. Many kinds of specialised programming projects were proposed and one or two even commenced. But the problem was simply that we didn't have a market large enough to justify the expense of development and, besides, the local buyers quoted an undated version of the 'Can any good come out of Nazereth?' attitude.

Right up to now, Australian software has often proven rather easier to sell in overseas markets than it has within our shores. This brings up the vexing problem of who pays for the development of software and how difficult it is to protect that investment.

In some areas of enterprise the protection of the investment is somewhat easier. For example, the application software developed for the Jindalee over-the-horizon radar project is protected by the full might of our many security organisations — ASIO is tough enough, but I wouldn't in any way tangle with ASIS, IIO, or the SAS.

Much of the same can be said about the various computer projects to drive our



*There was a brilliant software man, on the NCR staff, who wrote a program that would allow a skilled operator to use the Elliot 405's loudspeaker system and the 32 keys on the console to play a sort of reverse piano with only rather less than half the normal keys.*

anti-submarine aircraft and associated systems. The anti-submarine project was contracted out to a civil firm who can be sure it's investment is protected by men who carry guns and rarely, if ever, blink.

#### **Bootleg Software**

At the other end of the scale, we know of a major university that offers its students one of the more popular PCs and a truckload of (what must be at the price) bootleg software.

Now take your average PC specialist. He often has the wide-eyed look of the dedicated Shiite or a Dominican Fra Redemptor across his shining face. In his or her (the obsession is unisex) secretest pocket, lurks the answer to life, the universe, and everything.

Called '42', this software product offers Unix, Pick, Cobol, Algol, Exec 8 Level 512, Gecos Release 1024, Unisys MCP incorporating Linc 4, Fact, Compass, Cobol, APL, PL1 and Pascal plus Lotus and the full Ashton-Tate catalogue — all on the trusty Amiga. Incidentally, it is almost certainly portable to anything with solid state circuitry, including arcade games machines.

The wondrous product called 42 will sell approximately three units at the list price. Within an hour of its release, the Hong Kong pirates will offer a version at one-fifth the asking rate. Inside a week, those three units that were initially sold will have been copied exponentially — no more buyers because they all have friends who have copied it.

So, software for PCs looks like a doubtful income source unless you can sell it to business users in large numbers, as many

profitable PC sellers do. There is a problem with software sales to large commercial organisations — the large number of PCs sitting on desks, never feeling the invigorating surge of 240 volts.

One recent merchant bank order for 500 units in one hit with an initial 500 software sales has resulted in only 20 per cent of the machines being switched on. A study of these machines shows that the most use made of these, is to play bootleg versions of Flight Simulator — the market for commercial business software packages has been barely affected.

If you are going into the software business: better aim at government or large commercial sales or preferably sell the thing outright to Arcom Pacific, the Hartley descendent, Imagineering or some visiting American who is so impressed that he'll buy the company between shaves.

#### **Vile Machinations of HK Pirates**

But hope springs eternal, as someone said, and it is possible that some way will be found to protect and enhance the development investment of Australian software authors from the vile machinations of the rest of us and the HK pirates — at least until 1990 when the Peoples Republic of China takes over and stills such private enterprise as software piracy.

Another approach is to sell overseas. Take Len Baker — he spent just over \$2 million producing *Keyplus* which aids data entry on large IBM machines. It sold so well here his company moved to sell *Keyplus* in the US. He found that he had to spend another \$2 million just to get the sales literature and documentation into a US-saleable form. Len's recovered all his expenditure and is well into the black — but make no mistake: if you want to sell in the US (where much of the world's cash is destined to go), it's going to cost a lot of money.

Or, you could write it specifically for industries where piracy is frowned on. David Hartley targeted the Public Accounts Sector and built up one of the first Australian multinational computer companies with his Wang-based Hapas et al. At one time Hartley was selling his software in nine countries. But, he outran his available capital at about the same time as Wang realised that David was its biggest single buyer around the world; they mildly panicked and moved to restrict his activities a



mite. He had to try making his own hardware and then to call in outside aid. Hartley isn't with the company anymore, which is sad.

Having said all that about software, let's look at the range of possible application software — forget the other sort: it costs far too much for us to try to develop with our capital and resources. I mentioned Defense applications; these are growing as a ready source of income to us super computer-people with our trusty clones.

There are others. For example, I have variously heard of the operator of an eastern suburbs (Sydney, that is) massage parlour and executive stress removal consultancy who had a curious problem. He does much of his business early each morning with executives who have taken up the jogging craze. The problem (in what is normally a cash business) is that the joggers can't set out from their Paddington Heights address carrying wallets. However, a credit card slipped down the front of the shorts can be concealed from the early rising wife and rug-rats.

The parlour operator also owns a restaurant — *voila*, the card bills show the odd Vienna schnitzel and not health services. But since the operator runs his restaurant as a tax loss he actually uses his PC to rearrange the accounts to suit his own purposes. Here is a software application that won't be copied, or the boys will be around with the iron bars.

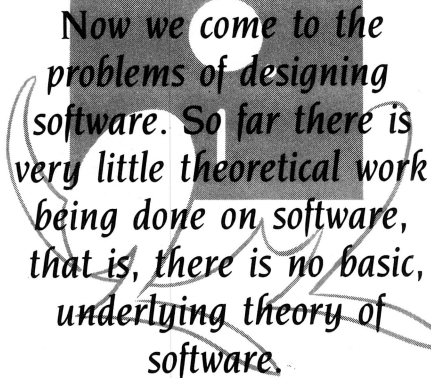
And, it seems there was one hotel built to take advantage of certain longed-for legislation. The owner employed a software man to write him accounting software to take into account the normal billing of an hotel and also the odd facilities required for casino gambling.

### Moet For Free

The software man was to live in the hotel while working on the application and all his food and room rental charges were to fall into the fringe benefits tax area. Drinks, on the other hand, were to be paid for by himself. It wasn't until the work was completed that the night manager noticed that the computer listing of room services made no mention of the numerous bottles of Moet he had shipped up to the computer man's room.

The man being asked about it, did a runner. He had inserted a simple loop that made the accounts routines ignore his drink bills... hasn't been seen for some time.

Now it seems possible that almost any-



*Now we come to the problems of designing software. So far there is very little theoretical work being done on software, that is, there is no basic, underlying theory of software.*

one can write a program to do a simple application; but, more and more, software isn't about simple problems. Imagine a military system, a target acquisition system, say, in which simple solutions will only stop simple minds employing similar simple software. What if a military system has software that can only handle three arriving missiles at a time and some uncooperative army sends in four?

Even more subtle was the problems faced by the target software in the British ships in the Falklands Islands. The British military software recognised the missiles being used against them as friendly. Replacement software wasn't ready to be installed until after the war.

Now we come to the problems of designing software. So far there is very little theoretical work being done on software, that is, there is no basic, underlying theory of software.

This lack of theoretical basis for our work has had serious consequences in both industry and defense. In industry it has led to project completion dates being set by educated guesswork (even Charles Babbage was guilty of this 160 years ago).

In defense work it has led to hackers being able to penetrate supposedly secure systems. The worst example of this occurred in the US four years ago when a hacker informed the main Norad control room that a flight of Soviet missiles was coming over the North Pole.

US bombers were within minutes of their non-return point when someone checked with the Distant Early Warning (DEW line) radar stations and the strike was halted.

Perhaps our empirical operations might have had something to do with recent reports from the US of the relatively poor financial performance of AT&T. The company formerly held a virtual monopoly of

US telephone business and had 'voluntarily' divested itself of much of its telephone business. The so-called 'Baby Bells' so-formed have all performed financially rather better than Mom. US financial analysts put this down to the US\$500 million Mom has spent trying to take on IBM and others. Much of this money would have been spent on software. (Tactfully, I don't mention Unix).

### Theoretical Software

Things are getting better on the theory front, however — Professor Hoare of the Oxford University Computing Laboratory, has been working on some mathematical systems that will enable software developers to have more confidence in the accuracy and philosophy of their systems. (In Australia some years ago, the head of Melbourne Universities computer department, now Professor Ford of Adelaide, was working towards a theoretical basis for software, but in the two decades since then I have lost track).

In a recent article outlining his mathematical hopes, Professor Hoare cited the other end of the software testing and reliability spectrum. When the first software was developed in Holland to calculate the extent of the wash from launching ships, the software people were required to stand just above their calculated wash high point. They might have escaped without wet feet, although they all had damp palms.

According to Hoare there are a number of mathematical systems which can be employed to pre-test safety critical software. (They seem to have been suggested in the work of Alan Turing before his tragic suicide 30 years ago). These systems are exactly the same as those used to check the design parameters of engineering projects. So far Hoare knows of no case in which these established methods have been used to check safety-critical software.

The need for these checks and also for the development of rigorous theoretical methods is obvious when one looks at certain large scale software. One typesetting system recently developed in Australia consisted of just over 500,000 instructions.

In short, because no one man can grasp the totality of the system, some statistical and theoretical methods will have to replace our hard-learned mechanic-like approach. And don't write any goto statements, they are no longer enough. □



# LET'S HAVE A GO . . .

**I**AN TROUT MAY not be well known within Australian computer circles, but, he is the backer and co-founder of a unique and very successful games publishing and software company — Strategic Studies Group Pty Ltd.

As you enter his workroom in Gladesville, two oval portraits propped on a filing cabinet catch your eye. One shows a sharp looking WWII German soldier from the Eastern Front, and the other, a bear of a Russian soldier sporting a bushy beard but with the twinkling eyes of a storyteller. The German is Roger Keating, a software wizard and the other co-founder of the company. The Russian is Ian Trout. Why the WWII uniforms? Strategic deals primarily in military simulations and that era is rich in source material. (For a sample of Strategic's games, see our review of 'Battlefront' in the February '87 issue.)

*I've been playing games ever since I was two. Games of the mind have always appealed to me whether they are about war or not. Military simulations are just inherently exciting. Not because men die, but because of the problems one has to solve before reaching a solution. I mean it's the mental entertainment that comes first. And, Ian admits, he's a sucker for electronic toys.*

## Napoleon's Book Shop

By profession, Ian is an entomologist (*not a very good one*, he claims.) He spent about six years as a teacher and then . . . *I got a bit lucky on the stock market and real estate. I mean, I'm the sort of fellow who'd just happen to have some silly reason for selling a few days before a crash. Or buy, thinking for some stupid reason that the stock would go up. I have one of those happy facilities. I'm the sort who never ever gets delayed on overseas flights.*

After all this 'luck', Ian retired from the workforce. However, after about six months, he was thoroughly bored. His boredom was reflected by the attitudes of his friends *who got p . . . d off with me!*

Around this time Napoleon's Military Bookshop in Sydney got into financial difficulties. On invitation, Ian accepted the challenge of trying to salvage it from its rapacious creditors and . . . *got lucky again.* Now, he has sold his interest in Napoleon's.

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*'I thought, well, let's not make money for those boys in America, lets have a go here. I'd always fancied myself as a games publisher or designer, or whatever. And that's how it all started' — and with that, as Ian Trout explained to Merv Beamish, he was in a new business.*

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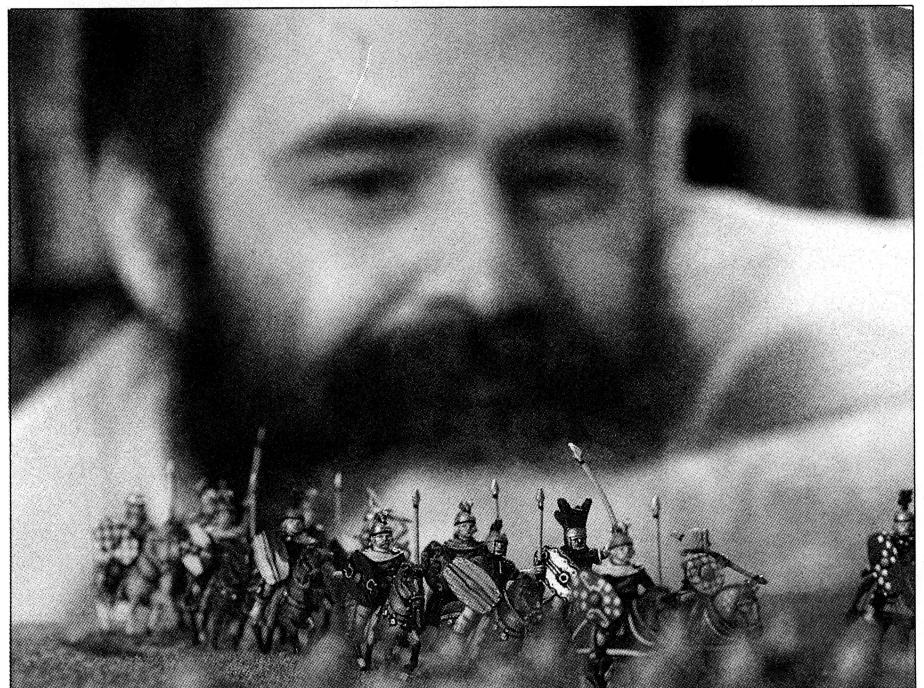
## The First Game

Strategic Studies Group started in November 1982 and Ian maintained an active interest in Napoleon's for some 12 to 18 months after that. In that time, Roger Keating, who he had only known in passing, *sort of adopted me* as a sounding board. Roger was writing games for SSI in America and sought Ian's assistance in testing and working out general concepts.

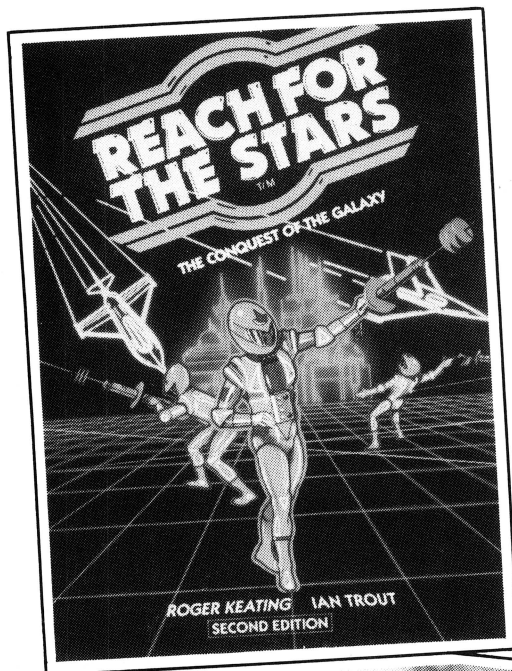
*I thought all of this is crazy. Having seen what other people were designing, I believed Roger's programming skills were far superior. I thought, well, let's not make money for those boys in America, lets have a go here. I'd always fancied myself as a games publisher or designer, or whatever. That's how it all started.*

But — it wasn't a full-time commitment. Ian was running Napoleon's and still had other interests. He agreed to 'feed' Roger while they produced the first game and then see how things went from there.

That first game was Reach-for-the-Stars, a challenging strategic game for 1 to 3 ▶







players with a playing time of 3 to 30 hours. The players colonise stars, build up industry, a social environment, defences, and then go to war. The computer itself 'makes up the numbers' if there is less than four players in the game.

It took six months. We had *Reach-for-the-Stars* out in June 1983, and it's hard to say how well something was received when you are looking at it with hindsight. We thought it was pretty well-received at the time; but, the revenue it generated was just about enough to keep Roger alive while we did our next game.

## Carriers at War

Ian believes the 17 months it took to release their next game, *Carriers at War*

*I'm the sort who never, ever gets delayed on overseas flights.*

1941-1945, was too long. (Carriers is a simulation of fleet carrier operations in the Pacific.) We didn't know enough — you can't know until you've done a thing. *Carriers* came out at the end of 1984 and was received well in the US. The company began to show a profit by about February 1985, three months after *Carriers* was out.

Around that time, the sales manager of a large American software distributor, Electronic Arts International, was in Australia. He asked us to breakfast with him because Roger has quite a good reputation in the US as a software designer. He took *Carriers* and *Reach-for-the-Stars* back to the US. A couple of weeks later we got a phone call from the President of Electronic Arts — they were keen to distribute our software.

Ian expresses surprise at the American interest in their product: We thought we would need four games on the market before any US company would take us seriously. But they were pretty keen and from then, we've had them as our principle distributor.

From the beginning, Strategic have remained unwilling to give Electronic Arts an exclusive agreement. It is not as though everything I make, they distribute. They make an offer on how many they want and on that basis I make a decision.

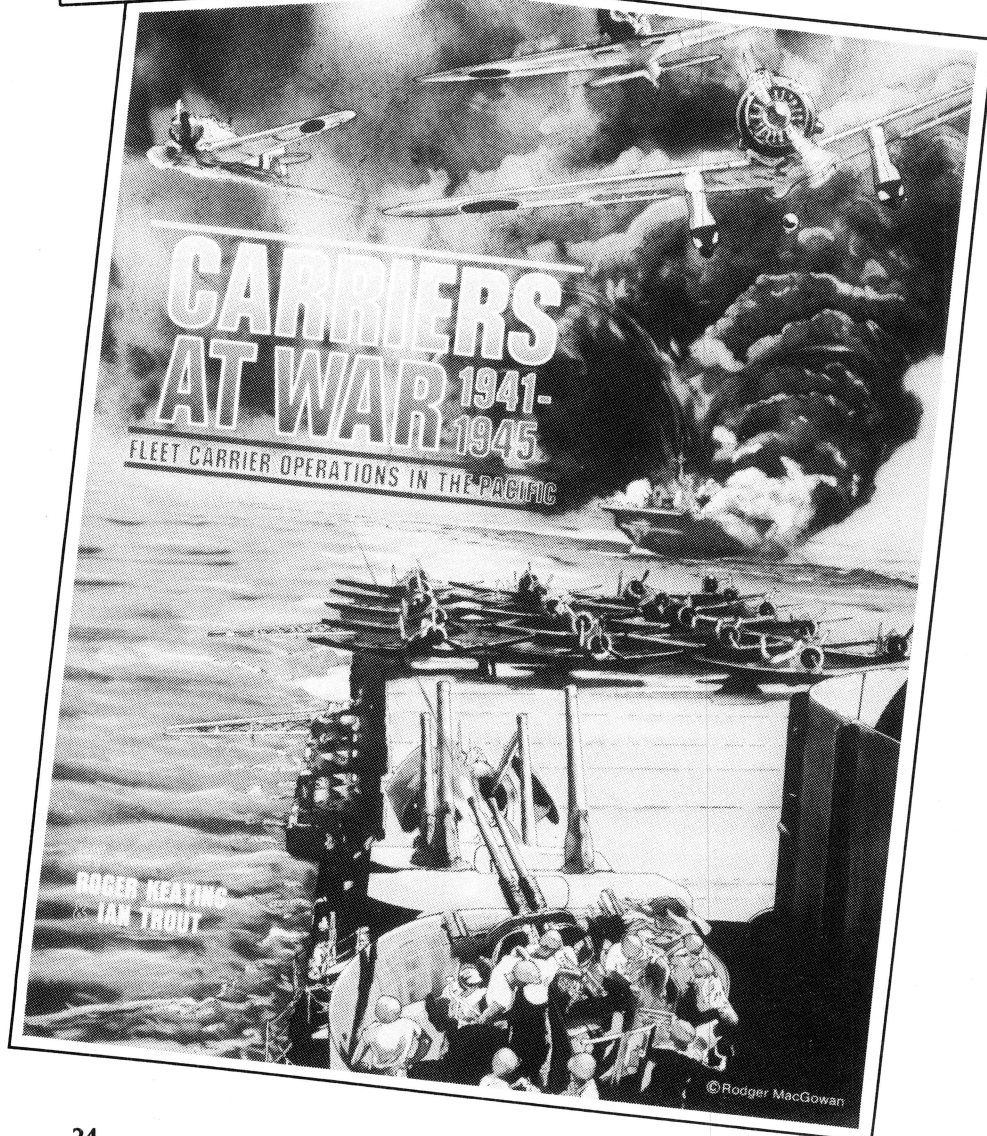
Other games followed: *Europe Ablaze*, *The Airwar over England and Germany 1939-1945*, and *Battlefront* (which gives corps level command of land battles of the Second World War). The latest release is *Russia*, which simulates the war on the eastern front, 1941-1945.

## Apples and Commodores

The games are made for Apple and Commodore. Apple versions make up about 40 to 45 per cent of sales; but, as a product gets older, the Commodore sales generally increase.

Ian commented, that the Commodore 128 is a not a bad old machine. It still has the C64 disk access problems — they're as bad as ever, but there's not much you can do about it.

We will need to direct ourselves to converting to the 68000 chip machine. Our games would look ▶





Over the page  
is a new  
computer.  
Inside it are  
two more.



# The new Apple IIgs.



The new Apple IIgs features among other things, a built-in Apple IIe and IIc.

Both of these computers, or rather, their functions, have been built into the Mega II chip you see here (and that's its actual size, of course).

Two years in the making, you'll find the revolutionary Apple Mega II microchip alongside many other new custom chips on the IIgs motherboard.



We put it there for one simple reason.

Compatibility.

The IIgs runs virtually all of the 10,000

existing II software programs.

Many, like AppleWorks, run an amazing 2.8 times faster.

Not that the Mega II alone can accept all the credit for this new-found speed.

The IIgs is powered by a new, blindingly fast 65C816 16-bit microprocessor (that's twice the power of the IIe).

And has 128k of onboard ROM that's expandable to 1 megabyte. Plus 512k of RAM, expandable to

a massive 8 megabytes.

Which means you can run the most advanced software without running out of memory.

The IIgs was partly named after its graphics, and no wonder.

The IIgs can create graphics as clear and sharp as the photographs you see in this magazine.

But with one major difference.

The range of colours.

The IIgs has 4,096 in all. From delicate violet to electric red.

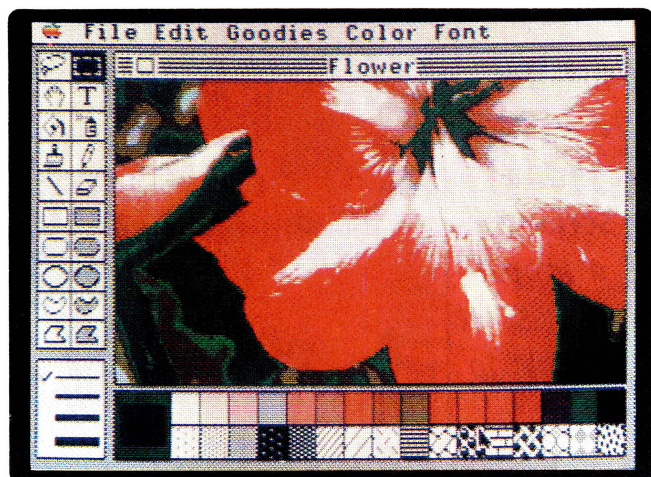
Any 256 can be used at a time in either of two graphic modes: 640 × 200 dots or 320 × 200 dots.



But you haven't heard anything yet.  
And we mean that literally.

The IIGs is so human, it even speaks.

The secret is a 32 channel Ensoniq sound chip, the kind you find in \$40,000



sound synthesizers (who says Apples aren't value for money?).

It allows you to compose for and play up to 15 instruments at a time.

(Now you know where the other half of its name comes from.)

Naturally, with such high-fidelity sound, it makes sense to add the optional Bose RoomMate hi-fi speakers.

It also made sense to redesign the IIG keyboard to give you maximum freedom.

This one is detached, so you can move it all over your desk.

Or hold it in your lap.

And to make number crunching easier, there's a numeric keypad built in.

The Mouse, now standard, can be attached to either side of the keyboard.

(We didn't want to make left-handers feel left out.)

Also standard on the IIGs is MouseDesk. The software program that gives the IIGs its Macintosh-like interface.

So now, transferring ideas into action is as easy as clicking a button.

And while the IIGs is easy to use, it's just as easy to expand.

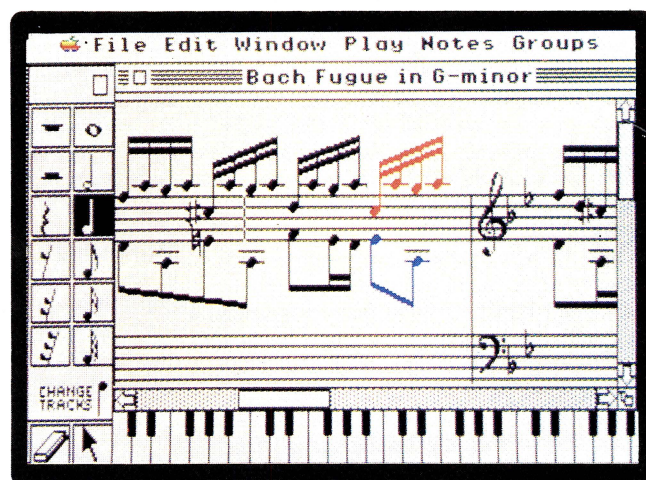
There are eight expansion ports at the back of the machine where you can plug in peripherals.

Anything from disk drives to modems, joysticks to printers.

You can share a LaserWriter with up to 30 other computers, thanks to AppleTalk, built into every IIGs.

Not only can you plug in a cord, you can plug in a card.

Take off the top of the IIGs and you'll find eight expansion slots where once again



it's easy to make the IIGs smarter, faster or more powerful.

As improvements become available, you'll also be able to plug them in. So your IIGs will never become obsolete.

The new Apple IIGs.

It's even greater than the two computers inside it.





good on the big machines, but we can't market those just yet.

Since Carriers, Strategic have included a Game Design Kit with each of their games. This module allows the creative gamer and historian to design scenario variations, or new and original campaigns. These kits have generated a spin-off from Strategic in the form of the 'RUN 5' journal.

Published quarterly, the journal carries minimal advertising, additional scenarios for each game, articles on game design, reviews on other games, and news about Strategic and its products. The published scenarios are also available on disk.

Strategic employs five people full-time; they hire other skills, such as artists, on a freelance basis. Roger's and Ian's roles in the production cycle tend to overlap — primarily Roger handles the software development while Ian handles design, 'Run 5', and marketing.

I buy whatever computers are necessary so we can all work at home, because that's where creative things get done. We've all got a Commodore, Apple, Mac, whatever. At the shop we've got three Apples which are only used for duplication and our new Commodore duplication machine. (That cost me \$45,000!)

But, the new machine can create a Commodore disk in 11 seconds. Previously, they used banks of 4040 dual diskdrives but that gave high error rates, and to copy, and then protect a disk, took about 2.5 minutes.

When you've got an order of around 7,500 Commodore versions, at 2.5 minutes each, it takes

*There is just not the market here. We realised right at the beginning that if we ever seriously hoped to make a proper success of the business, we would have to be able to sell in America.*

about three months to make it up. Electronic Arts want theirs yesterday. American companies are not much good at putting up with long delivery times. I don't like to make up huge amounts of stock in advance, so we needed something that could get the job done pretty quickly.

## Marketing

In the terms of money spent, Ian claims that Strategic's Australian content is 100%. Most of our sales are made overseas — America gives us 95%, Australia about 3%, and Japan and England make up the rest. We've got



quite a nice level of demand from Japan. There are quite a few Japanese subscribers to our magazine too.

Everyone who is distributing our products, almost without exception, came to us. Centresoft in Birmingham bought \$20,000 worth of product a couple of weeks ago. This is virtually our first UK sale of any sort. Electronic Arts would probably average about 3,000 to 5,000 units a month.

The American games market is huge — there are twenty times more people there than here. I'm happy to sell a thousand of each game in Australia, but that's not enough for one person's salary for a year. There is just not the market here. We realised right at the beginning that if we ever seriously hoped to make a proper success of the business, we would have to be able to sell in America.

How did Strategic break into the American market? Well we didn't have to break into it at all. Breaking into any market there means addressing a whole lot of different things. I thought, my skills don't lie in marketing; I've never done it and I'm not really keen to learn — what we'll do is follow the plan of making a better product and then see if that is sufficient on its own to win the market. And it has been.

For a non-marketing person, Ian gives a good impersonation of an experienced operator: Our only chance to manufacture something worthwhile in this country is if it's better. There are problems inherent in manufacturing here which often don't get addressed by the media. The main one of these is the very small size of our customer base. If you're going to compete equally with overseas goods, you must include a substan-





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# C trace

```

76 x(2)(0)= 01;x(2)(1)= 01;x(2)(2)
77 x(3)(0)= 02;x(3)(1)= 02;x(3)(2)
78 printf("The X matrix is\n");
79 for(i=0;i<3;i++) {
80     for(j=0;j<3;j++)
81         printf("%d\t",x(i)(j));
82 }
83
84 /* check is at left hand end */
85 for(i=0;i<2;i++) {
86     for(j=0;j<2;j++) {
87         if(x(i)(j)

```

The perfect companion for MIX C has arrived. MIX C makes it easy to write C, Ctrace makes it easy to get them working and see how they work. MS Dos 256K **UNIQUE ANIMATED TRACE**

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tial export market in your production plans. This puts a tremendous strain on planning and resources. And getting overseas sales is not necessarily as easy as getting local ones.

## Other Interests?

Although it might sound pretty boring, I like to play with toy soldiers. This was self-evident: On the shelves behind Ian as he spoke were several hundred small military figures ranging from the British Squares at Waterloo to armies of the Middle Earth fantasy world. All beautifully hand painted and standing in precise military formation.

And, he's a family man, enjoying dinners, movies and his three kids, with whom he spends as much time as possible. But when you run a business, you don't have a lot of extra time. I guess I work at least 12 hours a day, every day. I do that, not because I have to, but because I like it. If you're going to run a business successfully, it has to be a full-time commitment, and you have to work really hard — unless you happen to have a huge amount of talent. Well, I don't have that, but I make up for it with effort, I think.

## Luck?

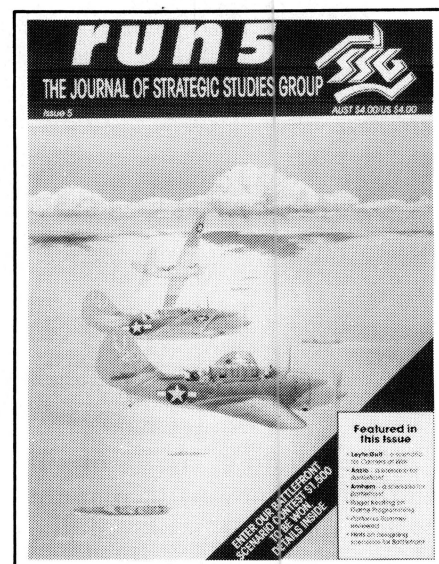
Did Ian think he was lucky? Oh yes! Absolutely! The single most important criteria in success is being lucky. Almost every useful person in history will tell you that too, if you read their memoirs. So many things can go wrong that you can't reasonably expect to take adequate precautions against all of them. There are certain industry-related and other specific things to look out for, but there are so many other things that can go wrong. So, we just try to be sensible.

And what's Ian's favourite Strategic Product? Reach-for-the-Stars — in many ways, it's the least mentally demanding and the most fun. It's a classic strategy confrontation you build up, manoeuvre, and then break down again. Our war in Russia game will be very interesting for me, too, because there is a big economic component in that one — I like games that don't have just a destructive component.

Although a good game of Carriers can be quite exciting (on an Apple, mind you). On the Commodore, the disk access takes too long, but we have Commodore owners who think it's wonderful. The only reason they don't complain is they've not seen an Apple run it.

Because of the convenience of desktop publishing, Strategic were utilising it well before the advent of laser printers. If we didn't have that sort of friendly and easy access to production, proof-reading and the like would be exceptionally expensive and time consuming jobs. It would add a month to everything we do. Laser

*I buy whatever computers are necessary so we can all work at home, because that's where creative things get done.*



Printer quality is 95 per cent as good as typesetting and, probably, within a year or two it will be 100 per cent.

Ian looks forward to what he believes will be the next stage — desktop printing. He envisages a machine around the \$10,000 to \$15,000 mark that could do limited four colour printing, stapling and collating.

## And the Future?

Oh look! I have trouble keeping up with yesterday. I don't look too much to the future. I mean, you have to be prudent in the sense that if I have to close down the business tomorrow, I don't want to have to scat out losing money. We're enjoying what we do now and making as best provision as we can for what may happen in the marketplace.

Ian pondered a moment before finishing: The future is just interesting. But the eyes seemed to sparkle in anticipation. □



# IT'S A BREEZE

*Through the years we've seen literally hundreds of new 'computer' companies starting out with ideas whose time had come (or so it seemed). Less than ten per cent of these survive their second year in business. Tim Hartnell (no mean entrepreneur himself) went to Geelong to talk with Breeze Software's Garry Landers about how his company has survived for more than a decade?*

**T**IM HARTNELL began by asking Garry, Breeze's Managing Director, why his interest in things computer. I remember years ago, when I was a kid, going to my father's office. The two guys who had telephones were the top dogs. I heard someone say, in an awed tone of voice, that 'one day, everyone will have a telephone on their desk'. Then, later, when I was going through tertiary education, there were two guys in our class who had calculators. And they were the top dogs. People predicted then that, eventually, everyone would have a calculator.

Now, the claim is that everybody is going to have a computer on their desk. We're not there yet, but we're on the way.

When I spoke to Garry about Breeze, I

discovered that the most fascinating thing about the company was that its growth, development, and changes of direction almost exactly mirrored the evolution of computer use in Australia. From clunky mainframes and programmers hired out on contract to produce one-off programs, through user-hostile software for minicomputers, to microcomputer software sold in zip-lock plastic bags with dreadful manuals run off one by one on a dot matrix printer, to slick, sophisticated software with classy, typeset manuals, Breeze has seen — and done — it all.

As Garry pointed out, the company was started in 1976 and I guarantee there aren't too many software companies still in existence from that time, even when you look at it worldwide. We started around the same time as Microsoft. Whereas Microsoft saw a market niche for operating systems and languages, Breeze looked to fulfil the needs which businesses would have for computer power.

A man named Bob Burrows started Breeze as a computer bureau. We also did contract system work, Garry explained. The company would provide a programmer to a government department, or a large firm, to write a particular application or control system for a mainframe computer.

I wondered what Breeze had done right, so that they were still in business (and very profitably) while the vast majority of those firms offering similar services to Breeze 20 years ago had faded? As Garry sees it, Breeze's survival had come mainly from a willingness to examine the marketplace dispassionately from time to time, and the courage to act on the result of that examination, even if it meant terminating parts of the business which were making money.



## Breezing Through

Despite the inevitable reverses, the business grew quite spectacularly, and in due course Breeze opened up a second office, in Melbourne. Most of the contract systems work, which was handled primarily from the Melbourne office, was on mainframe computers. But computer technology was advancing, and minicomputers were becoming more and more common by the late seventies.

Breeze saw the mini market as one it should get into. The trend for minis was increasing, and their power was going up and up. There was the same excitement for minis at that time, as there was for microcomputers when they first hit their stride in the early eighties, Garry said.

It is, perhaps, difficult for us to imagine the situation at that time. Today, a PC-clone for less than \$1500 will satisfy many business needs. But the world was different then, a businessman would see the opportunity to get a system for \$30,000 which would have cost him \$150,000 or more a few years before.

Breeze saw that for many applications, the minicomputer would soon supplant the mainframe, so the emphasis of the business shifted. We decided that selling a minicomputer as a full business solution, equipped with our own software, would be a good idea. So, we went the way of most DP companies in those days, hunted around and got some American-based software and the rights to modify the source code.



# It's a Breeze

The market was — simply because it had no choice — far more tolerant in those days. We proceeded like most DP companies, said Garry. There was lousy documentation, and the systems were run in such a way that the company which bought it had to rely on us for support.

And these were not whizzbang 'control the world' programs. They were applications no more sophisticated than many off-the-shelf microcomputer programs of today in the field of business accounting.

The market put up with this simply because the 'arch wizard' computer operator syndrome was still in force — only the chosen few could understand or operate a computer. At that stage, Garry remembered, people were still not sure whether the office person could operate a computer.

## Spreading Their Wings

And this feeling persisted even into the early 1980's, when microcomputers started spreading their wings. But the software market was largely supplier driven. People took what they could get. It was obviously a time in which companies could learn while they were trading. We started to package software at that stage, late in 1979, and the package was absolutely amazing. The manual was printed on a dot matrix printer, and the software was packed in zip-lock plastic bags. Very low level. But we thought it was pretty good. There wasn't a lot around, and we were pretty impressed with ourselves at that stage; we thought we'd done something pretty good. Our general ledger package and some of the others were rewrites of American software, while the payroll program was our own. Then, most software was tailor-made; there was very little available 'off the shelf', but that didn't matter in those unsophisticated days, because most customers were certain their needs were unique.

And this software wasn't cheap. An up market general ledger package, for example, sold for around \$2500 (1980 dollars), while the same program today would cost about \$1500 (1987 dollars).

Breeze intended to sell this software only along with a computer, as a 'complete business solution'. But by then everybody was looking for software, and we've got some pretty damn good software. There are people out there trying to sell minis, we thought, and they had no software at all, and so we decided to see what the market was like. When we sold a program, we'd run off a manual on the dot matrix printer, and copy the disk, and there you were. Everybody thought 'Gee, this isn't bad, fancy buying someone else's software, like that'.

At that time, minis had evolved to the

**Survival had come mainly from a willingness to examine the marketplace dispassionately from time to time, and the courage to act on the result of that examination, even if it meant terminating parts of that business which were making money.**

point where many companies had them set up to allow multiuser access, and some good software for those applications was available. We can see now that we made a mistake in not packaging up a lot more software than we did in those days. We had a lot of opportunities to do it, but we didn't recognise the potential of the situation.

In February 1982, Breeze decided that the future lay in microcomputers. We saw an opportunity to get involved in the development of microcomputer software. In 1980 and '81, micros were starting to look a little bit better than they had in the past. 1979 was the year that Apple came into the country with the first, fairly limited machine, and Commodore entered the picture with the PET. To ensure they had some link with this market, which they sensed was going to be big, Breeze bought the shop which had the Apple franchise for Geelong.

We bought that with the intention of developing software in the micro market. In those days, to sell one Apple a month was considered pretty good.

Breeze then developed the Six S range of business software which included payroll, debtors/inventory, creditors/general ledger, medical billing, professional billing and word processing packages. (Incidentally, the Six S range was one of the first software reviews done by YC, way back in July 1981.) The programs, written in Pascal, originally ran only on the Apple, but they are now available for the Macintosh, and the IBM PC. Close to 5000 Six S packages for the Apple alone have been sold, making it probably the most widely-used Apple accounting software in the country.

Many companies would have been pleased to be in the situation in which Breeze found itself. A profitable software company, enough work to keep two offices up and running, and a retail outlet which was making money. But even with the success of Six S, Breeze wanted to get a better grip on the direction the company was taking.

We looked at various vertical markets, because we had our professional billing package, and thought it could be adapted to use directly in retail stores. We looked around and could see that people were starting to buy Visicalc and similar programs, and more and more people were buying their own computers.

Breeze realised that, although many retail stores had elaborate point of sale devices, none of them offered true computer power, with such things as instantaneous update of files. So, using an Osborne as

25-05-86

"BREEZE POINT OF SALE PROCESSING"

BREEZE SOFTWARE SAMPLE COMPANY

### SALES

1. CASH SALE
2. C.O.D. SALE
3. LAYBY SALE
4. ACCOUNT SALE
5. "NO SALE"

### CASH DRAWER

0. PAY OUT OF DRAWER
1. PAY IN TO A DRAWER
0. CASH A CHEQUE

### PAYMENTS

6. C.O.D PAYMENT
7. LAYBY PAYMENT
8. ACCOUNT PAYMENT

### MENUS

- M. MANAGEMENT MENU
- X. SYSTEM MENU

ENTER OPTION CODE -

PRESS SELECTION OPTION



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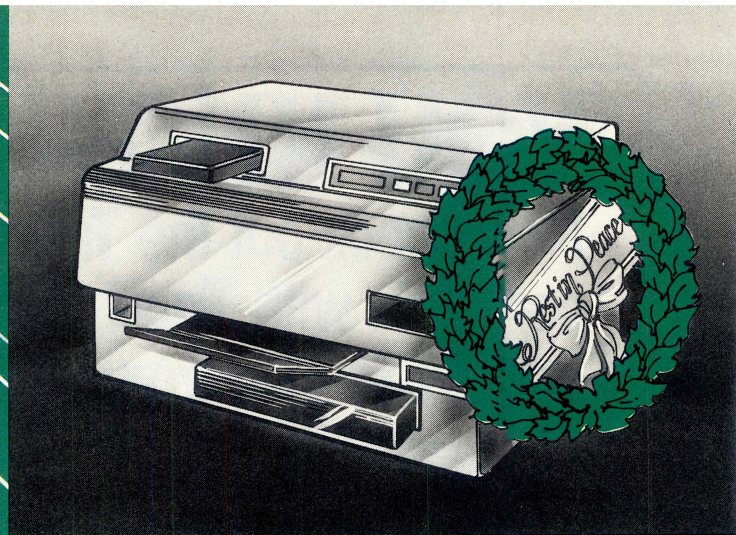
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the base, a computerised cash-register was developed. *The machines were ugly, a very unattractive-looking package, but it worked, and those who bought them were happy. The development on our point of sale device was going on in the background as we continued with our other work. It didn't seem to be a great burden on us, except that it seemed to be an opportunity which was worth developing. And from that we evolved some reasonably sophisticated options, and sales kept increasing.*

### Written Under CP/M

The software was written under CP/M, and we realised that if we were to continue developing this market, we needed to make the software available under MS-DOS. We went back to the drawing board, taking all that we had learnt from the

sale software, Computerland selected the general ledger, accounts payable and purchase ordering for its franchisees to install to provide then with accounting and management control functions.

In the middle of 1984, Breeze decided it once again had to determine where the company was going.

*We still had our contract systems operation going on, which we knew we'd have to either get out of, or expand. We had a shop which had grown from five people to thirteen staff. We had people running around in the countryside selling equipment, and the company was definitely growing. We had the increasing sales of software, of course, and the sale of was the point of sale material.*

### Fingers In The Pies

It was reasonably clear at that stage that

we had our fingers in so many pies that we really needed to assess the business. We were in micros, minis, mainframes, retail, contract systems, and bureau work. It was obvious we had to work out where we were going. Although the company was profitable, we felt that the bottom line did not represent the magnitude of the effort which was being put in.

So we sold out the contract systems because it was marginal; we were finding it hard to find new business as user's needs changed. We had initially got into the retail outlet to get a knowledge of micros, and we had now gained that knowledge. We were, primarily, a software company, but our shop had grown in size and was starting to become all-engrossing as well. Although the shop was profitable, relative to the software side of the business, it was not in the same league.

From two offices, 50 employees and a range of businesses, Breeze decided to narrow down, and concentrate its forces where they would do the most good.

*We decided to 'work smarter, not harder', as the saying goes. We now have a dozen people working at Breeze, with just the Geelong office, and we are doing extremely well. We make more money now than we did when we had 50 people.*

So, there it is. A local company which has survived changing business conditions which have swamped many a larger firm. The story of Breeze's development closely parallels the evolution of computers in Australia. The secret of Breeze's survival — and a lesson for all of us — lies in their willingness to sit back from time to time and ask 'Where are we going?', and then redefine that direction, if necessary.

25-05-86 "BREEZE REPORTS AND FILE MAINTENANCE"

---

BREEZE SOFTWARE SAMPLE COMPANY

REPORTS	MISCELLANEOUS
S. STOCK & SALES REPORTING	T. TODAY'S TOTALS and
C. CUSTOMER REPORTING	BALANCE TILL
B. BANK DEPOSIT LIST	H. BACKUP AND RESET
D. DETAILED TRANSACTIONS	Q. FILE ENQUIRY
	FUNCTIONS
	U. UTILITIES
FILE MAINTENANCE	
	M. METERED SALES
	SYSTEM
F. FILE MAINTENANCE	R. REBATES SYSTEM

ENTER OPTION CODE -

---

PRESS SELECTION OPTION

*'The Six S package is excellent for microcomputers. It is well designed with excellent error checking and prompting . . . The speed of operation is quite surprising and can probably be attributed to the use of Pascal rather than Basic', was how we summed up that original review.*

CP/M-based systems, and designed what we wanted to have under MS-DOS. It's now been evolving over the past four years.

The point of sale system is now so sophisticated, that Mobil have told their dealers, Australia-wide, that the Breeze system is the preferred one for use at their petrol stations. And, in an even greater tribute to the quality of the software, the Computerland chain chose Breeze software for installation in its shops throughout Australia. In addition to the point of

25-05-86 "BREEZE MANAGEMENT FUNCTIONS"

---

BREEZE SOFTWARE SAMPLE COMPANY

CREDITS	JOURNALS
1. CASH SALE CREDIT	5. C.O.D JOURNAL
2. C.O.D. CREDIT	6. LAYBY JOURNAL
3. LAYBY CREDIT	7. ACCOUNT JOURNAL
4. ACCOUNT CREDIT	
STOCK	MISCELLANEOUS
I. STOCK IN (RECEIPTS)	S. SET TODAYS DATE
O. STOCK ORDERS	C. CLOSE A SHIFT
A. STOCK ADJUSTMENTS	Q. ENQUIRY
	R. REPORT and FILE
	MAINTENANCE

ENTER OPTION CODE -

---

PRESS SELECTION OPTION



# START THINKING SMART

— an Interview with Tom Cooper of President Computers.

**T**OM COOPER IS THE founding father and managing director of President Computers. The company started almost by default in 1970 under the name of President Office Machines NSW. At the time the local distributor for the American made Smith-Corona typewriters had just been taken over. As Tom tells it: *Smith-Corona offered me the agency in a caretaking role to begin with. In a short time (and with no fully-fledged salesmen), we were out-selling the old distributor and setting new sales records.*

(Tom is the human equivalent of a pregnant pogo stick — you can't keep him on one spot or one topic very long before he has bounced off and given birth to something in another direction. He freely admits that the cash required to initially launch President was made by running his own roller skating rink in Hornsby.)

By 1973, Tom had convinced Smith-Corona that it was viable to assemble typewriters in Australia. He moved President to Hornsby (Sydney) where he opened his first factory.

There were 2600 components to each typewriter. After designing their own production-line techniques, President outperformed their American counterparts. *While the Americans were assembling one unit every 30 minutes, we were doing 14 units every 15 minutes — our assemblers were each doing 28 times the work of theirs!*

The experience gained in this venture was to bear fruit when the company entered the computer era. Starting with previously unemployed young people, he gave them on-the-job training in methods similar to those used by Volvo in Sweden.

*We assembled in 14 stages and let each employee work on, and learn, a stage for a month and then progress to the next stage. After 14 months, the worker had learnt everything there was to learn on the assembly line. The young people loved it because they never got bored.*

With this method, each worker ended up knowing every single adjustment of every part of the typewriter and eventually could command more advanced positions — such as senior technicians and service engineers with Tom's growing dealer network.

At the same time President, in a small

*From his own roller skating rink to his own computer manufacturing company — Tom Cooper is an Aussie example for entrepreneurs everywhere.*

*As Merv Beamish discovered, Tom's approach to business is all his own. And it works!*

---

way, had entered the world of electronics. They were assembling electronic calculators under license from Japan.

With the appearance of the electronic typewriter and the reluctance of Smith-Corona to move with the times, Tom had to make some financially crucial decisions. *Smith-Corona was behind in electronics so we made a decision to get out while we still had money in our pockets. We took a very heavy loss — this was about 1978/79. We moved right out of assembly and into computers.*

The move also saw the birth of the President approach to marketing. In 1987, the philosophy is more streamlined but the three basic building blocks are still there.

First, a fervent belief in doing it the Australian way. Second, packaging systems for what the end-user wants, rather than what the technocrats think he wants. Finally, realistic pricing backed by good after-sales service.

Initially, President were going to market a fully imported Japanese computer. However, they made contact with an Australian designer and purchased the rights to make his machine. It was an 8-bit machine with twin 1.2 Kbyte, eight inch floppies — an equivalent to the AWA computers of the time.

*We bundled a monitor, printer, stationery and software. It was a full accounting system and a wordprocessor. At that time a similar computer*

*would have been about \$22,000. With our system, the customer paid \$14,000 and was ready to start work. He didn't even have to buy paper — everything was there. And most of these machines are still in service!*

## The Osborne Era

*One day a guy walked in and mentioned Osborne to me. I didn't know what it meant from Adam — all I knew was that it was a portable computer, compact, different, and that the price was equal to some of the electric typewriters of the day. I thought that a computer selling for the same price as an electric typewriter must be a goer. We bid very keenly for the agency and won. (He later found out that he had successfully competed against 75 other Australian businesses.)*

The way that President won the Osborne agency is an insight into the Tom Cooper way of doing business — persistence won the day: *I never got off the telephone. I spoke to Adam Osborne every day until his office thought we were related.*

Osborne was greeted in Australia by a press conference held at the US Trade Centre in Sydney. At that stage, Tom still had one of the largest dealer networks for typewriters in Australia — he invited them all plus the press. Osborne was so impressed that he gave President the dealership on the spot.

Tom recalls that *some of our dealers had made appointments to see Adam Osborne privately. He invited me along to the meetings — which made it really embarrassing for them. (You have to understand that business is business and a distributorship like that was fair game.)*

President eventually appointed some of these people as dealers. The Osborne was the making of Tom Cooper and President. Outside of Osborne's own corporate sales, they became the company's largest outlet.

Osborne and President parted company when Osborne decided to set up in Australia themselves. But, *his manager couldn't make the numbers on his own, so he started to approach my dealers; it was obvious that sooner, rather than later, he was going to take my network away unless something was done. Fortunately the dealers stayed loyal and gave me time to look at the market place.*

## Kaypro Computers

Against Adam Osborne's advice, President went into Kaypro. Tom liked its size and



capacity combined with the inclusive software. The Kaypro took off rapidly. Once again, with our experience in marketing, a big success materialised.

Tom claims that they did a better job in marketing the Kaypro than they had ever done before. He had also learned from experience — he tied them down with a strong contract and registered the Kaypro name in Australia: *because sooner or later, I knew they would do an Osborne on us. They offered to buy into President. I suggested that we survey the market first. Instead, they decided that they could do a better job on their own and opened up behind our backs.* However, as far as the industry goes, Australia is a small country and we knew about Kaypro's move almost the day it happened.

President decided to go for their own label. We had already been looking at IBM compatible products; don't forget at the time that Kaypro's were not IBM compatible.

Tom points out that President had their own computer in progress almost a year before they knew of the Kaypro move. Of course, Kaypro was not able to trade under their own name until they had settled the finalisation of the agency — it took them a while, but they eventually came to the party.

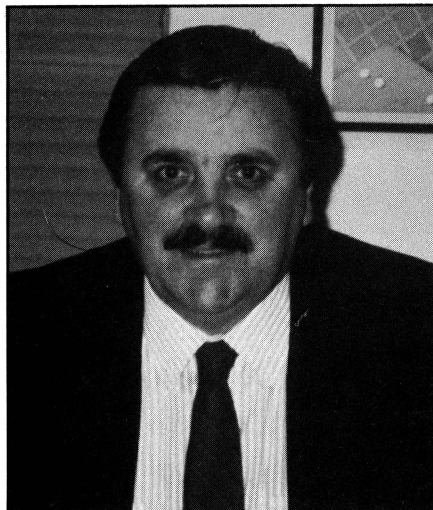
In the belief that the Australian market had stabilised, Tom pointed President Computers back into the business of on-shore manufacture. Components were bought off-shore to be assembled in Australia and compete directly with Japanese, Taiwanese and American products. We looked at South Australia and New South Wales. However, the Queensland Government seemed to be the most bona fide of all and offered us good incentives. We set up a factory in their high-tech park in Labrador.

The old typewriter production line was taken out of mothballs, added to, and redesigned. Most of the work was carried out in-house. Then, we wanted to give a good image in the showroom and offices in the factory. We looked at all the Italian, Swedish and German manufacturers. We got a quote for the showroom, reception area and offices. It came to around \$80,000 and they very kindly gave us the brochures illustrating the quote.

A local cabinet maker looked at the brochures and quoted around \$20,000 for the furniture and custom-made designs.

### Why Build In Australia?

Many people say you can't manufacture in Australia. In many instances that statement is fair, but what you can do is assemble. Today our labour costs are competitive with the States and the UK. All over Europe, we can compete dollar for dollar in production and performance.



Tom Cooper of President Computers: 'Australia can compete with Taiwan and Korea, but you have to start thinking smart.'

Australia can compete (not too unfavourably) with Taiwan and Korea but you have to start thinking smart.

President employs young people between the ages of 16 and 19 on their production line. The philosophy behind this and the production line methods are the same as when Tom was assembling typewriters in the 1970's. Computer shops and computer service organisations are a growth industry. All of our young people are employed as inexpensive production workers, although we always pay above award wages. After two years in production, the young workers gain sufficient experience to command more interesting jobs with much higher salaries. They enter the repairs and maintenance side of the industry.

Since the beginning, Tom has always carefully planned production and his future — what does he see for the future of Australia? I didn't invent my philosophy, I learnt it from Mexico. Every single commodity imported into Mexico has to be imported in an unfinished state. If shoes are imported from Italy, only the uppers and lowers come — the Mexican workers do all the machining, eyelets, and lacing.

If everything imported into Australia was built here — if every electric iron, every fan, every television, was shipped over in component form and we did the last 10 to 20 per cent of assembly — we would be training our people and keeping the young ones off the street. We would also save an enormous amount on our import bill and we would be in control of the finished product.

Tom might get on his soap box when it comes to building in Australia, but he's put his money where his mouth is. And this gives us control of the finish, the quality, the last tightening of the screws, the last polishing of the

case, the last checking before it goes out. That gives us the confidence to give a two year warranty.

Tom's favourite President product is the AT range: it's a world beater! It's one of the healthiest, if not the most powerful, AT on the market. It's a good looking product: every time I sell one, I open the case and let people look inside. In price, it stands up against the el cheapo machines, yet its performance and quality match the other end of the market.

Has Tom got a pet gripe? You bet! There is one Australian computer magazine that is full of Taiwan ads directed at small Australian businesses and the public. Now most of these Taiwanese companies are traders, not manufacturers. I've been there and seen the sort of facilities they have and the sort of quality they put together. That magazine is not doing the industry any good, and they certainly are not doing the public any favours — nothing is cheap if after you buy it, you go on paying and paying for the lack of support.

### Horizons

The aim for the future is to gain more and more expertise and local content, giving more control over the finish, the quality and the configuration. The company is currently building computer boxes, and the first shipment of optical scanner components is on the way. An agreement has also been struck with a manufacturer of high resolution monitors.

One of President's latest products is the IBM-compatible MegaPage Desktop Publishing System. I put it to Tom that this seemed to be a move to one side for the company. I suppose desktop publishing is like leaving typewriters to go to calculators, and calculators to computers. It's just another step taking us away from the rat race where everybody offers essentially the same products. (Matt Whelan reviewed MegaPage in YC, February '87.)

His family is certainly part of the company's future — his wife Pauline, daughters Joanne and Rachel (still at school), and son Mark, all work in the company giving support, encouragement and security. Of course, this involvement allows the younger generation Coopers to learn the ropes and eventually, to pull a few of the company ropes themselves.

If you talk to any of the Coopers, you'll soon find that the company is very much a way of life; as much a part of the family as the pot roast on a Sunday afternoon — if they ever get time to cook it!

From the man that claims he never has had money, the man who admits that work is the magic that makes him tick, and a wanderer from England in 1960, the proudest exclamation he offers is: I am Australian! □



**I**MPECT SYSTEMS LTD has an annual growth rate of 400 per cent and is currently readying itself to take on the likes of Oume, Dataproducts, and Centronics — currently the world's biggest names in computer printing. Best known for its L800 Laser Printer, Impact promises to be an influential, home-grown multinational.

The influential (and home-grown) founder and chief executive of Impact is computer printer specialist John Price. He worked with DEC, Wang, and ADAPS (where he was marketing manager), prior to establishing BDS and their range of plug-compatible printers here.

At BDS John learned two important lessons for being successful in the printer business. As he tells it: *Firstly, what you have to do is provide state-of-the-art technology ahead of the large multinationals. That is easy to do because they are slow to adopt new technology. The reason for that is they have thousands of offices around the world. Think of the time frame required to plan, exploit the technology, train the people, and put spare parts in place. It is a huge, international logistics problem. A smaller company can move quickly.*

*You also have to be compatible with other people's hardware and software. So we [BDS] built electronic interfaces that allowed equipment to plug into an IBM so the host computer will think it's talking to another IBM. We built the same type of custom interfaces for Wang, Digital Equipment, and Remington.*

*We cannot yet afford to try and set standards out of a country the size of Australia. We must wait for our big international brothers to set a standard — and then we have to be very quick in getting in and adopting that standard and riding the wave with them.*

### **Birth Of The L800**

Impact was established in 1983 when John saw an opportunity (and market) for placing intelligence in printing systems with printer application microprocessors. Laser printers had started appearing on the scene and Impact began developing a product of their own.

*We were printer people and knew what the market required. The most significant decision we took (now it's obvious) was to use the Canon mechanism and then develop intelligent controllers. We took the lowest level of 'intelligent' as being the Hewlett-Packard Laser Jet and anything we could improve on, we did. We secured our position in the market by conforming to their standard, and then set out to do everything better than they had done.*

*I think we've achieved that, because now many customers are trading in their Hewlett-Packard*

# **FUTURE IMPACT**

— 'Technical Excellence Down Under'

*Because of our relatively small home markets, the secret of success for most Australian companies is to export. But what's the secret of successful exporting? As Merv Beamish learned from John Price of Impact Printers, a well-defined strategy and not following the text book examples, is one way to make it.*

*controllers. We're putting Impact controllers into their HPs and upgrading them into Impact machines.*

When talking to John, it soon becomes obvious that he goes out of his way to make sure that credit goes where it is due. He almost ripples with pride when he talks of his research and development team, his production people, marketing and sales team. *Initially I was the product champion for the Impact 800 but that's changed as new people have come into the company. There are many product champions at Impact today.*

Impact has a whole generation of products coming though this year — at least six new machines. With the new hardware and firmware designs, Impact expects to set a new standard in the industry. *We will*

*be releasing 11, 16 and 20 page a minute (pam) models with various options.*

*The 20 pam model will have dual input trays plus an input stacker that is capable of holding 2000 sheets; it will have duplex printing, which means it will print both sides of the sheet; it will also collate and will support an even broader range of emulations than we do now, including Postscript. Another new machine planned for release is a 50 pam laser printer.*

*The 20 pam machine will take A3 and have the capability to print two A4 pages side by side. Both the 20 and 50 pam printers will have a console option that will enable them to sit on a local area or broad band network; with up to 60 Mbyte of local storage, they can act as print spool devices.*

*The company is developing a colour printer, with experimentation being carried out in ink jet machines, thermal transfer and lasers. We believe that lasers will be the route to follow for colour printing. We anticipate having a colour laser printer within an 18-month time frame. For everyday use, it will be a very expensive printer: the cost per page will be something like a dollar by the time you add materials to the capital investment. For large banking and other 'institutions' — those that would want to use it as, say, a cover to a board report or a major client proposal or quotation — that dollar can be justified. You wouldn't want to use it for a whole report.*

*In passing, John mentioned that he believes that optical scanners will become standard system peripherals — graphic images will be scanned from original art, photographs, books, whatever, and digitally read into the computer system. There will be the ability to manipulate them, if necessary, and print out in four colors.*



*John Price, Impact Printers: 'We are determined that Australians can play a part in the industry — a very meaningful and viable part in the industry.'*



# Future Impact

## Desktop Publishing

We're not convinced that the current approaches being used for desktop publishing are the right way to go. Impact has done a fair amount of research into the topic and we are also working on it with Datacrest, a large US company. At the moment, we are developing our own version of a Postscript-type language. Postscript is an inherent part of desktop publishing: it's a standard, not a formal industry standard, but a *de facto* one.

While contemplating addressing the desktop publishing market through a separate software company, John indicated that they are playing a waiting game as far as developing special hardware is concerned. Both Postscript and DDL (Hewlett-Packard's stated standard) will be inside their new machines. *What everybody's got to realise is that the full impact of IBM hasn't been felt yet in this area — and they probably will be the ones to determine what the standard will be at the end of the day. We have to determine our role in desktop publishing. What is our exit point? What is our area of expertise?*

Impact will not be sticking with the Canon 'engines' entirely — they have three Japanese manufacturers producing the mechanisms for their new machines. (The electronics and firmware are developed and assembled in Australia.) John believes that we are 'the lucky country' when it comes to research and development. *Frankly, in the R&D area the salaries are lower than their American and European equivalents which is a benefit when trying to establish a new product in the market. And, we don't have the advanced aerospace and defence force industries to compete with for highly skilled R&D engineers. We have access to the cream of the crop.*

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***We anticipate having a colour laser printer within an 18-month timeframe.***

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## Export Impact

This year export sales will represent 30 to 40 per cent of the total — exports are expected to exceed domestic sales within two years.

Impact found it harder to get into the export market than they anticipated. But the Australian market environment taught the company a number of important lessons which have shaped its policies for the export market. *You cannot put one or two people in a serviced office and expect to penetrate a market like Perth, for instance. What you have to commit is five, six or seven people — get a critical*

*mass there and do the market properly. Then you have a peer group, and peer group pressure and support develop. The market sees this as a serious commitment rather than a half-hearted effort.*

In Sydney, we have 20 sales people today. Now that implies that to properly market in a city the size of New York you need 80 to have a critical mass. Logically, we cannot think of putting a manager in an overseas country and giving him the task of recruiting such a large sales force and the people to support them.

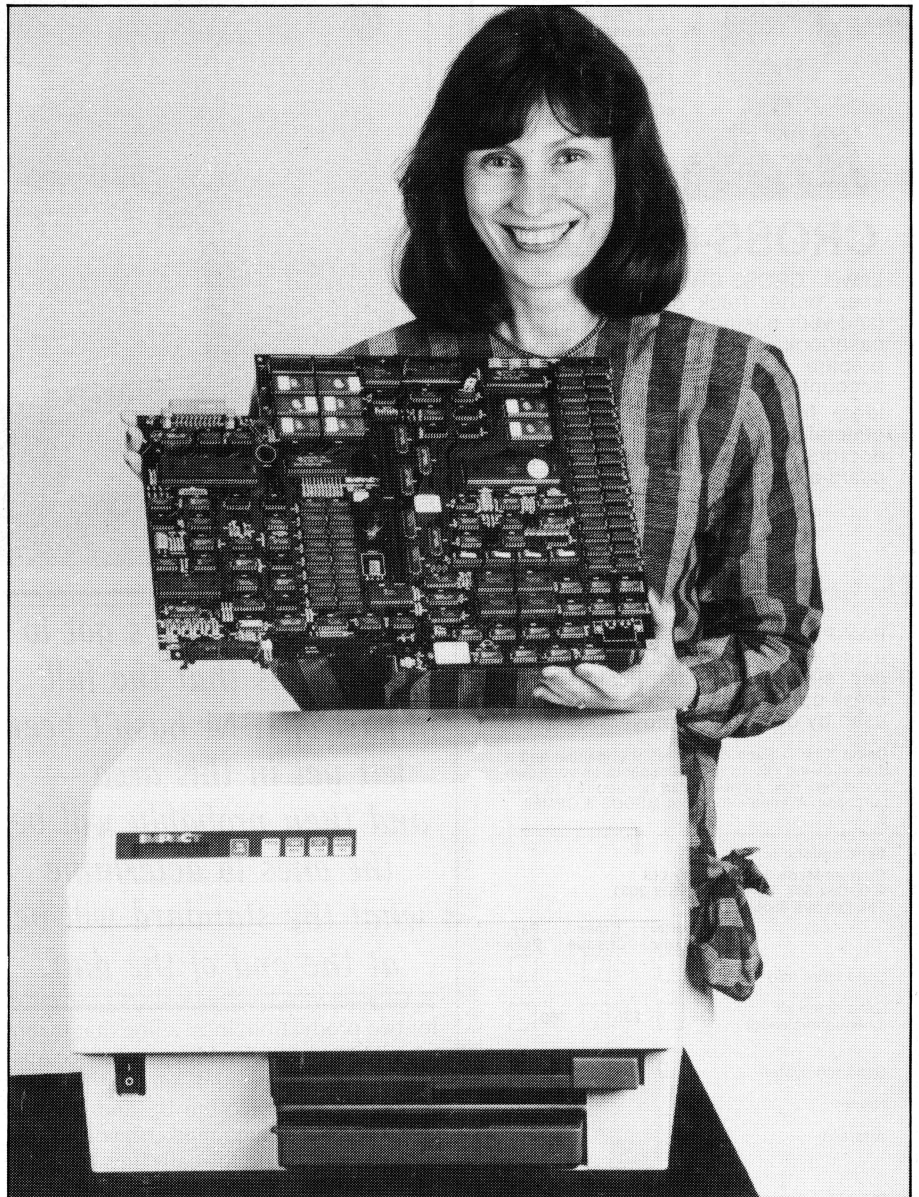
Impact's strategy is to buy already-established companies in the target market. They have their sales team in place; they have technical support

people, administration staff and may even have local assembly facilities.

Now that gives you a hot start in the market. You can get your products established very quickly and you can reach profitability much quicker than trying to establish an organisation from scratch.

John went on to point out that this approach also meant that the company, at the same time as expanding their markets, was acquiring assets which is a more palatable occupation as far as the shareholders were concerned.

While currently all assembly is carried out in Australia, John sees a requirement



Impact's R&D section has developed a laser controller with dual 10 Mhz microprocessors.



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*What everybody's got to  
realise is that the full  
impact of IBM hasn't been  
felt yet in this area —  
and they probably will be  
the ones to determine  
what the standard will be  
at the end of the day.*

for two production lines: a line that is running 220/240 volt machines to service Australia and Europe and another for 110v machines to service the US and Canada. Because of the huge market involved, the second line should logically be situated in the US.

Eventually the controller boards would

*First secure your position in the market by conforming to an established standard, then set out to do everything better than it's already been done — that approach has made Impact a recognized (and successful!) innovator.*



be manufactured in the US for the 110v marketplace. This would give Impact a second source for their own products.

John says the Impact's production line methods are very simple but effective. The aim of any production line is to be versatile and very flexible so that you can put different products through the production line and not have to have special labour or special tools.

If you go into some of the Japanese production lines, they've achieved that by having multi-functioned stations. They can handle any voltage or any size machine. There are hundreds of millions of dollars involved in those production lines. We have straight production benches and the level of our sophistication is air-driven tools. Our lines are still very flexible. We are not as efficient as our Japanese competitors, nor can we hope to be, but we are certainly as efficient as our American competitors.

It is a positive reflection on Impact that 80 per cent of their production workers have taken on some kind of tertiary qualification through technical colleges. People



# Future Impact

can go from our production line to our test and repair area and start to get involved in the repair of the product and debugging. There is a career path for them. They can go out to a field service environment or alternatively to R&D. Also, there is an apprenticeship for just about every job we have.

People coming from university into the

---

**We don't have the  
advanced aerospace and  
defence force industries to  
compete with for highly  
skilled R&D engineers.  
We have access to the  
cream of the crop.**

---

company's research and development area are attached to a team and go through the design process with that team. The research and development group are broken into a number of these teams which develop specific skills in such specific areas as firmware, hardware design and interfacing.

## Future Impact

Since its inception, Impact has averaged an annual growth rate of 400 per cent. Its predicted sales for 1987 is around \$60 million. The company expects to go public in the first half of 1987.

It becomes harder, as our base gets bigger, to keep the 400 per cent up. What we hope to achieve is to be a multinational printer company with its HQ in Australia. That means that the guys to knock off the block are Qume, Dataproducts and Centronics.

All of those 'big name' companies are experiencing declining sales and declining company loyalty — with the exception of Qume. We've modelled ourselves on them and appear to be closing the gap. Purely on a technology basis, we have gone past them.

The Impact L800 laser printer is sold in the UK, France, Holland, Germany, Canada, US, Italy, Belgium, Singapore, New Zealand and Hong Kong. Impact has overseas branch offices in Auckland, Wellington, San Francisco and Amsterdam. At the moment they are negotiating for the controlling interest in an established US printer company. If successful, this will significantly enhance their presence in the US market.

## Down Under

'Technical Excellence from Down Under' is the promotional slogan which Impact uses aggressively. We are constantly told about German mechanical excellence in their motor cars, and about America's high level of technology as illustrated by the space shuttle.

I'm tired of having to explain that we have newly developed technology coming out of Australia. So, we've gotten fairly aggressive about it — all our packaging is Technical Excellence from Down Under, our brochures are Technical Excellence from Down Under, as is our advertising. We don't mean it in a conceited way, but we are keen to show other Australian companies that it can be done and that it can be done profitably.

I'm very committed to our R&D team — I think that we have some outstanding people there and we want to give them the opportunity to develop products for us which can be exported into world markets. We have some very good sales, marketing and service people who have been trained by large multinational organisations (and we thank them for that). We are determined that Australians can play a part in the industry — a very meaningful and viable part in the industry.

---

**We cannot yet afford to  
try and set standards out  
of a country the size of  
Australia. We must wait  
for our big international  
brothers to set a standard  
— and then we have to  
be very quick . . .**

---

Pride in the product, dedication to the Impact ideals and concern for the morale of the 'troops' is all part of the atmosphere of Impact — an atmosphere that greeted me at reception and stayed with me all the way through to the Chief Executive's office.

I tend to take work home with me, both mentally and physically. Senior members of the company are all working roughly 14 hours a day, six to seven days a week. We're not living, if you like, a social life: we are very dedicated to what we're doing. It helps the adrenalin keep pumping. It's a reward in itself.

John added that he hoped to get this a little more in balance within the next two years. What makes John Price tick? I don't have an option not to! ☐

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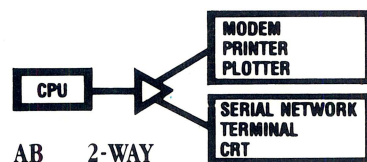
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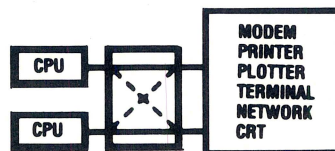
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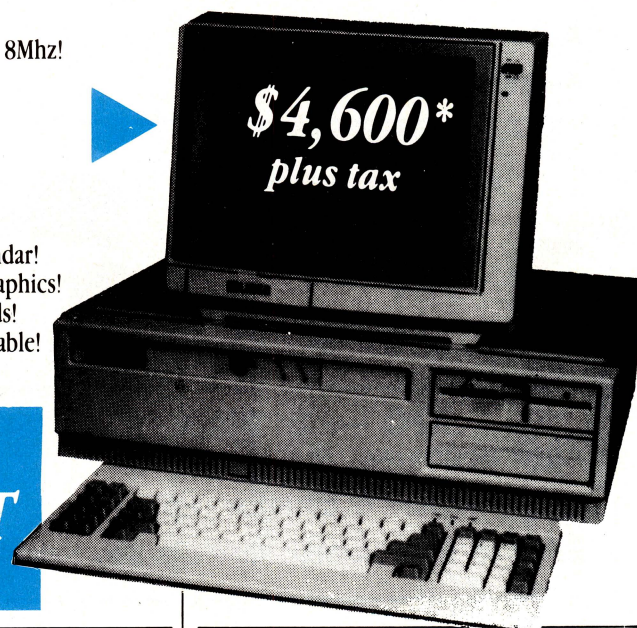
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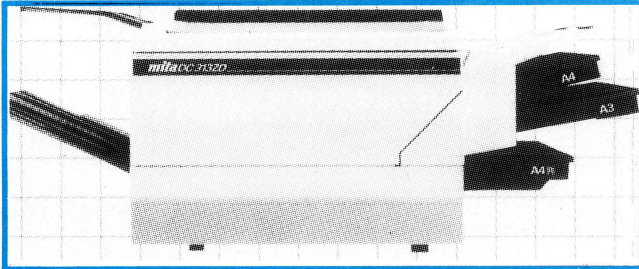
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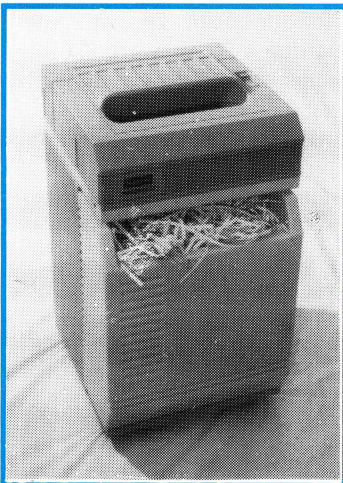
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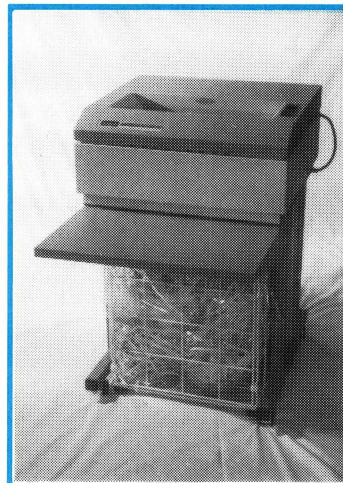
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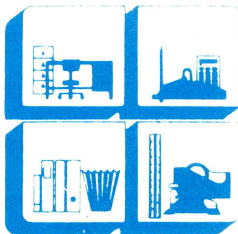
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# DECLARATIVE LANGUAGE FOR AUSSIES

---

**M**ost computer languages behave like Prime Ministers. "Tighten your belts" is a sample command from a Prime Minister. PRINT "YOU ARE A FOOL" and GOSUB 1000 are sample commands from computer languages. Such languages are described as being 'imperative'. That is, they are made up almost completely of commands which are to be obeyed by the computer.

However, not all computer languages are like Prime Ministers. Although the most common ones, such as BASIC, FORTRAN and COBOL, are imperative, there is another group of languages which are 'declarative' languages. These are more like the organisers of a computer dating service, as they are made up of *definitions* which *describe relationships* between elements that the computer is manipulating.

Stick with me, even if this is starting to sound complicated, because it gets a little clearer very shortly.

## The Execution Process

When a program written in an imperative language is executed, the computer follows a number of orders, making decisions of the IF/THEN type, and then outputs the results of its processing. When executing a declarative program, the computer makes use of the definitions to satisfy a queried link between entered ele-

---

*Lisp, Prolog and now  
DELFA! Tim Hartnell's  
own DEclarative  
Language for Aussies is  
ready to match your  
questions with the facts —  
just like a computer dating  
service.*

---

ments. The output of such a program is the link which it discovers.

Most computer languages, such as good old BASIC, work very well when the task to be carried out is a 'linear' one, when the approach to the problem demands a traffic cop (the central processing unit) to direct the 'thinking processes' down a well-defined path. But such approaches are not suitable for situations when a number of elements need to be able to interact simultaneously and freely.

Now we know the Japanese are beaver-ing away, trying to make computers as intelligent as you are (optimistic, aren't they?). And these very same Japanese, in their much-trumpeted 'fifth generation

project', know very well that following a straight-line path to solve a problem, like our traffic cop-directed languages, is unlikely to produce the intelligent computer. A fifth-generation computer, instead of being a single, sequentially operating processor, looks like being a number of processors working in parallel, each engaged in separate (but related, and linked) tasks.

Each of these tasks is somewhat like a subroutine to a main program, except that instead of being called one by one, and only at particular times in a program's execution, the 'sub-processors' are all grinding away at their work from time to time, constantly 'reporting' to the other processors, and reacting in turn to their output.

You probably have had some contact already with declarative (or 'descriptive', as they're sometimes called) languages. Lisp (LISt Processing) and its derivatives, such as Prolog (PROgramming in LOGic) and Logo, are all declarative languages. A Prolog program is made up of a database of facts and rules which you can interrogate.

## Painless Indoctrination

To gently break you into declarative languages, I've invented a primitive language of my own — DELFA (DEclarative Language For Aussies). You need only a relatively short time to type this program into your computer in order to get DELFA up



*When executing a declarative program, the computer makes use of the definitions to satisfy a queried link between entered elements. The output of such a program is the link which it discovers.*

and running. If you then go on to learn a 'real' declarative language, such as Prolog, the experience you've gained with DELFA will be of assistance. And even if you don't want to learn another language, you can have quite a bit of fun teaching DELFA some facts and then questioning it.

You build up a database in DELFA by entering sentences which contain an asterisk which effectively breaks the sen-

tences into subjects and predicates. The computer accepts these sentences, and from them you can answer questions and reach conclusions. This is easy to understand if you look at the sample run.

You'll see below that first I told my computer a number of facts. Notice the asterisk falls within the sentence, directly preceding the verb, and takes the place of the space which would normally appear in that position in the sentence.

```
> JOHN*IS A MAN
> PETER*IS AFRAID OF THE WOLF
> MARY*IS AFRAID OF THE WOLF
> PETER*IS A MAN
> MARR*IS A WOMAN
> PETER*CLIMBS TREES
> MARY*CLIMBS TREES
> A STITCH*IN TIME SAVES NINE
> A PENNY SAVED*IS A PENNY EARNED
> PETER*IS EIGHT FEET TALL
> PETER*IS FOURTEEN YEARS OLD
> PETER*IS A COMPUTER EXPERT
> PETER*READS 'YOUR COMPUTER'
> MARY*IS A COMPUTER EXPERT
> MARY*IS NINE FEET TALL
```

To interrogate the database, you enter a question mark once the prompt appears. If you want to check on whether or not a particular fact is held by DELFA, you simply follow the question mark with the statement you want to check. The program replies with TRUE or FALSE, and then the line END OF ANSWER, to show that the information it has printed out is all it can give you in response to that particular query.

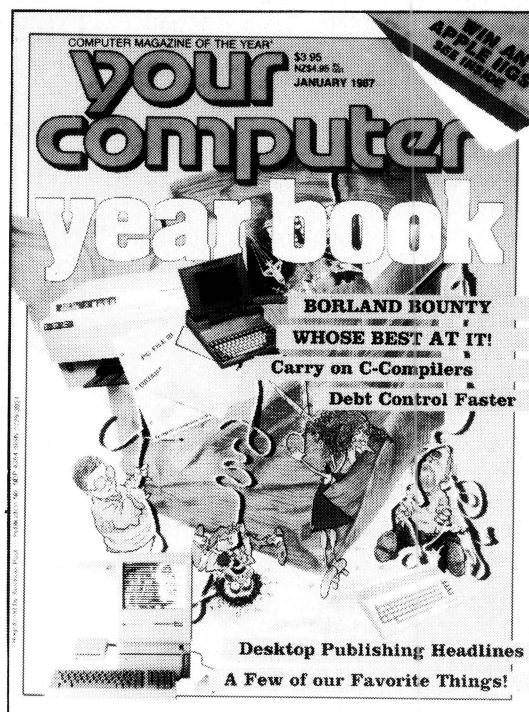
I then checked to see if DELFA has learned about certain subjects —

```
> ?PETER*IS A MAN
TRUE
> END OF ANSWER <
> ?PETER*IS AFRAID OF THE WOLF
TRUE
> END OF ANSWER <
> ?PETER*READS 'YOUR COMPUTER'
TRUE
> END OF ANSWER <
> ?PETER*IS THE PRIME MINISTER
FALSE
> END OF ANSWER <
>
```

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```

10 REM
20 REM
30 REM
40 REM

```

If you want to know what DELFA knows about a particular subject, you substitute a slash ('/') in your query line for the information you want it to supply. Next, DELFA reveals what it knows about PETER (as the question, in effect, is 'Give me all the predicates which apply to the subject PETER').

```

> ?PETER*/
IS AFRAID OF THE WOLF
IS A MAN
CLIMBS TREES
IS EIGHT FEET TALL
IS FOURTEEN YEARS OLD
IS A COMPUTER EXPERT
READS 'YOUR COMPUTER'
> END OF ANSWER <
>

```

You can also supply the predicate part of the statement, and DELFA will supply all the subjects with that predicate —

```

> ?/*IS AFRAID OF THE WOLF
PETER
MARY
> END OF ANSWER <
> ?A STITCH*/
IN TIME SAVES NINE
> END OF ANSWER <
>

```

I hope, by looking at the sample runs, you're already getting an idea from this limited language as to how declarative languages can be interrogated, and can

```

> ?/*IS AFRAID OF THE WOLF AND /*IS A MAN
PETER
> END OF ANSWER <
> ?/*IS AFRAID OF THE WOLF AND /*IS A COMPUTER EXPERT
PETER
MARY
> END OF ANSWER <
> ?/*CLIMBS TREES AND /*IS A PENNY EARNED
> END OF ANSWER <
>

```

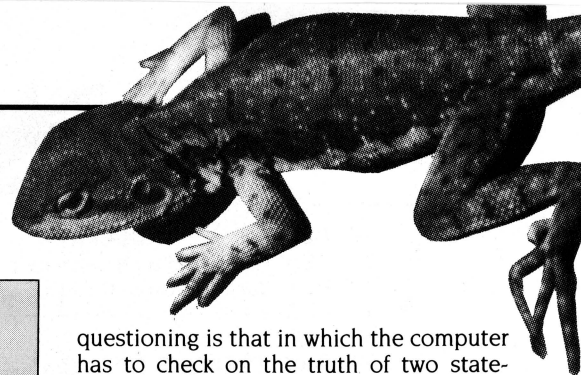
show some elements of 'intelligence'.

#### On the Other AND

Now, more useful than the above forms of

questioning is that in which the computer has to check on the truth of two statements, and supply information which satisfies both those conditions. The question below, which uses an AND, is actually asking DELFA 'What subject(s) is afraid of the wolf AND is a man?'. The next question in this run is asking 'What subject(s) climbs trees AND is a computer expert?'. The third sample shows that, for some questions, NO ANSWER is the only reply.

If DELFA had been, for example, 'educated' to know medical information, it could be asked 'What subject (disease) causes red spots and appears in children ▷



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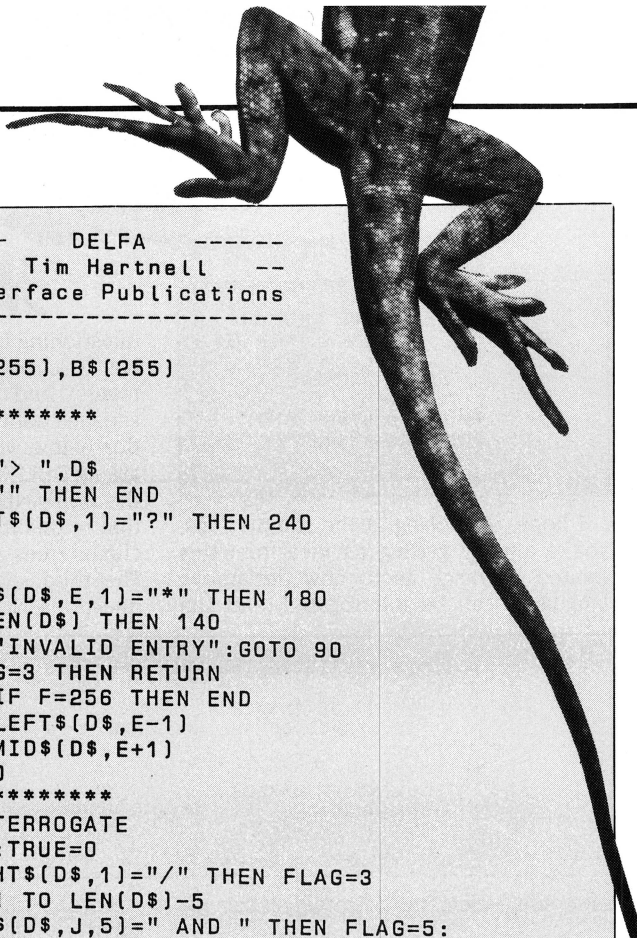
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```
10 REM ----- DELFA -----
20 REM -- Tim Hartnell --
30 REM Interface Publications
40 REM -----
50 REM
60 DIM A$(255),B$(255)
70 F=0:CLS
80 REM *****
90 FLAG=0
100 INPUT "> ",D$
110 IF D$="" THEN END
120 IF LEFT$(D$,1)="?" THEN 240
130 E=0
140 E=E+1
150 IF MID$(D$,E,1)="*" THEN 180
160 IF E<LEN(D$) THEN 140
170 PRINT "INVALID ENTRY":GOTO 90
180 IF FLAG=3 THEN RETURN
190 F=F+1:IF F=256 THEN END
200 A$(F)=LEFT$(D$,E-1)
210 B$(F)=MID$(D$,E+1)
220 GOTO 90
230 REM *****
240 REM INTERROGATE
250 FLAG=4:TRUE=0
260 IF RIGHT$(D$,1)="/" THEN FLAG=3
270 FOR J=1 TO LEN(D$)-5
280 IF MID$(D$,J,5)=" AND " THEN FLAG=5:
TRUE=J
290 NEXT J
300 IF FLAG=5 THEN 450
310 IF LEFT$(D$,3)="?/*" THEN FLAG=1
320 IF LEFT$(D$,4)="?/*/" THEN FLAG=2
330 IF FLAG=3 THEN GOSUB 130:F$=MID$(D$,
2,E-2)
340 IF FLAG=1 THEN F$=MID$(D$,4)
350 E=0
360 E=E+1
370 IF A$(E)="" AND FLAG=4 AND TRUE=0 TH
EN PRINT "FALSE"
380 IF A$(E)="" THEN 560
390 IF FLAG=4 AND "?"*A$(E)+"*"+B$(E)=D$
THEN PRINT "TRUE":TRUE=1
400 IF FLAG=3 AND F$=A$(E) THEN PRINT B$
(E)
410 IF FLAG=2 THEN PRINT A$(E);"*";B$(E)

420 IF FLAG=1 AND F$=B$(E) THEN PRINT A$
(E)
430 IF E<255 THEN 360
440 REM *****
450 F$=MID$(D$,4,TRUE-4):G$=MID$(D$,TRUE
+7)
460 E=0
470 E=E+1
480 IF A$(E)="" THEN 560
490 IF B$(E)=F$ THEN 510
500 IF E<255 THEN 470
510 H=0
520 H=H+1
530 IF B$(H)="" THEN 500
540 IF B$(H)=G$ AND A$(E)=A$(H) THEN PRI
NT A$(E)
550 IF H<255 THEN 520
560 PRINT TAB(5);" > END OF ANSWER <"
570 GOTO 90
```

under the age of four?' The information used by DELFA would have been entered in straightforward English (apart from the asterisk). This is one of the real advantages of declarative languages. They allow natural language input (within restrictions, of course) and can reply in a fairly straightforward manner.

### Vee Haf Vays of Making You Know Everyrsing

If you wish to find out everything which your current DELFA program knows, you enter a slash on each side of the asterisk -

```
> ?/*/
JOHN*IS A MAN
PETER*IS AFRAID OF THE WOLF
MARY*IS AFRAID OF THE WOLF
PETER*IS A MAN
MANR*IS A WOMAN
PETER*CLIMBS TREES
MARY*CLIMBS TREES
A STITCH*IN TIME SAVES NINE
A PENNY SAVED*IS A PENNY EARNED
PETER*IS EIGHT FEET TALL
PETER*IS FOURTEEN YEARS OLD
PETER*IS A COMPUTER EXPERT
PETER*READS 'YOUR COMPUTER'
MARY*IS A COMPUTER EXPERT
> END OF ANSWER <
>
```

Here's a summary of the operating rules to help you experiment with the power of DELFA :

1. All input is in sentence form, with an asterisk coming between the subject and the predicate of the sentence.
2. You interrogate the database by preceding your input with a question mark.
3. To check if DELFA knows a fact, you enter the fact, preceded by a question mark. It will reply TRUE (it knows it) or FALSE (it doesn't).
4. A slash (/) is substituted in other queries, in the position within the statement you want the program to answer. This means that ?/\*FATHER OF TOM will return something like JOHN IS and ?/\*/ will print out the whole database. ?JOHN IS/\* will return something like FATHER OF TOM.

5. The database can also reply to AND questions, supplying answers for which both statements are true, so ?JOHN/\* AND FATHER/\* will return all information which is true for both JOHN and FATHER.

As you'll see by examining the listing, DELFA works its magic by simply manipulating the elements of a couple of string arrays, in which up to 255 facts can be stored. □



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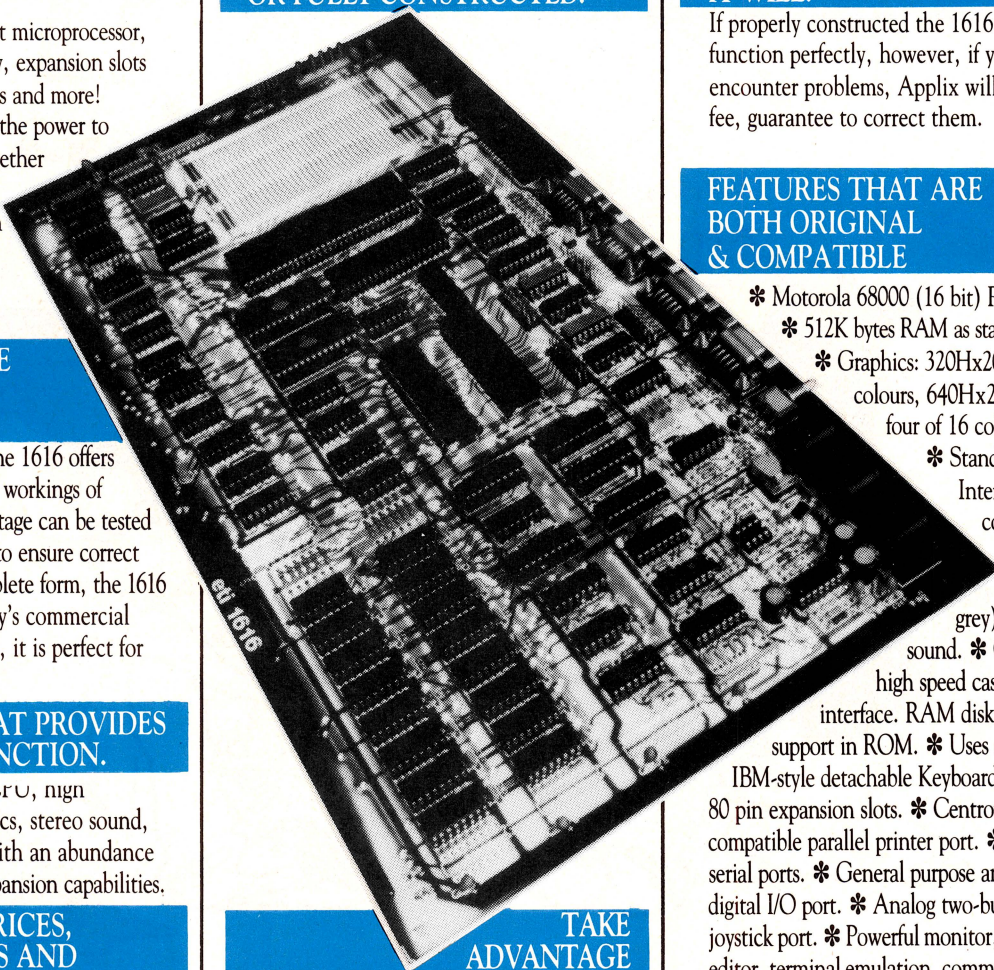
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# THE CONSTANT COM

*Wordstar passed into my possession and its battery of commands was duly mastered, an experience for which I was adequately prepared by the study of Latin at school — the two systems are, apparently, equally arbitrary.*

BY FARQUHAR CAMERON



## COMPUTER BUFFS WERE TREATING ME AS AN EQUAL....

I AM A FREE-LANCE translator (a harmless enough breed, albeit one which has contributed little to the sum total of human happiness). Two years ago, however, weary of translating credit reports and bills of lading into Spanish, and undoubtedly fraudulent insurance claims out of other languages, I decided to write a best-selling novel and retire to my native Scotland. Perhaps, it occurred to me, I could start a salmon farm.

After some weeks at my electronic type-

writer — the very last word in sophistication, I thought when I bought it, with three pitch settings and a one-line memory for error correction — I came to the conclusion that a word processor would not only speed up the job quite considerably, but would also help in the preservation of our forests (and everyone else's too), for I was going through paper at an alarming rate. I accordingly popped down to my local computery and for a modest sum scored a CP/M computer with one floppy disk drive, 128K of memory — RAM, as I learned to

call it — an anti-glare screen for the screen and a word processing program.

### CP/M

I was altogether delighted with the set up, and after learning the essentials of CP/M, mastering the word processor and reaching an understanding of baud and parity (necessary if the electronic typewriter was to be used as an on-line printer), I returned to my novel with great enthusiasm and renewed vigour. Output went up. Paper consumption went down. Conserva-



# PUTER - or, "What you need, laddie . . ."

tionists no longer spat at me in the streets. All parties were satisfied.

After a few months, however, the word processor's various shortcomings began to slow down my work and my attempts to get into the program and tamper with it slowed down my work even more. It would only perform search-and-replace forwards and would do so in respect only of one word at a time. It would not send certain accented characters to the electronic typewriter. It took forever to reformat a text. It offered no facility for writing parts of a file to disk or reading parts of a file to another file. None of my crude groping and fumbings would change any of this. It was, I was reluctantly forced to admit, primitive. 'What you need, laddie,' people told me, 'is Wordstar. Wordstar will do all these things and more.'

## Wordstar

Wordstar passed into my possession and its battery of commands was duly mastered, an experience for which I was adequately prepared by the study of Latin at school — the two systems are, apparently, equally arbitrary. The novel, by this time some one hundred pages in length, was transferred to Wordstar format and ingenious combinations of commands were devised to remove all the unwanted hard carriage returns and other aesthetic imperfections. But as I used the system, further shortcomings came to light — things seemed to take far too long, far too many keystrokes were needed and frequently used CP/M commands had to be re-entered every time they were required.

Surely, I thought, all these things can be rectified — simply a matter of getting into the operating system and fiddling with it. I set about studying CP/M in greater depth. I began to read computer magazines. Entire days were spent in the writing of macros of ever greater sophistication. From time to time, when no improvements to the system occurred to me, when I could spare the time from my researches and when there weren't any Argentinian bills of lading, a paragraph or two of the novel was written.

In the richness and fullness of time, the novel was finished, submitted to my agent and refused by all reputable publishing houses. Hardly to be wondered at, I told myself — aside from being my first novel, it was written under outdated technology. Quite clearly, if my literary career was to flourish, I would definitely have to have an IBM compatible.

*But still my soul was not satisfied. Surely, I complained to computer buffs of my acquaintance — for I was beginning to meet such people, to speak to them, even, as an equal, to allow them to buy me drinks in bars — surely it must be possible to work on two text files at the same time?*

## IBM Compatible

A comparison between my resources and the cost of IBM compatibles revealed that a new machine was out of the question if I wanted a reasonable amount of RAM, two disk drives and enough folding money left over to deflect the wrath of my wife, so I bought a second-hand machine from a computer consultant, who seemed to collect computers in much the same way as other people collect coasters. Wordstar in its MS-DOS manifestation was also supplied. With my deep understanding of CP/M, it was a relatively simple matter to master the essentials of MS-DOS; and Wordstar I already knew inside out. Within a few days of buying the machine, I had all my CP/M disks transferred to MS-DOS format. I had the electronic typewriter hooked on and was ready to start writing again.

## Superkey and Sidekick

But there were still shortcomings: there were still far too many keystrokes, still no way of routinising frequently issued DOS commands, still far too much flexing and contorting of the fingers for the issuing of multiple key commands. 'You need Superkey,' they told me. 'With Superkey, you can redefine any key on the board to do anything you want.' Superkey was duly acquired.

But still my soul was not satisfied. Surely, I complained to computer buffs of my acquaintance — for I was beginning to meet such people, to speak to them, even,

as an equal, to allow them to buy me drinks in bars — surely it must be possible to work on two text files at the same time? When a new idea comes to me for an earlier section of the novel, it's such a pest to have to save the current file, call up the earlier one, make the appropriate alteration, save the edited file and then return to the first one. 'Sidekick, mate,' they said, one and all, wisely sipping their ale. Sidekick joined the stable.

Then the computer packed up — a matter of drive B sounding and behaving like a truculent sewing machine (fortunately, I am most diligent in the making of backups, so nothing was lost to the world of letters). 'No worries,' the consultant said. 'I'll take it away and fix it, and in the meantime you can use this machine.' This machine was a partially IBM compatible creature with a screen of outstanding clarity. Its departures from the norm, however, were sufficient to require a couple of days to get used to — in particular, there was no way of getting it to run Superkey or Sidekick, with which I had almost come to grips.

But despite these minor drawbacks — and after convincing it that driving the electronic typewriter wasn't such a bad idea after all — I was able eventually to embark upon the composition of my second novel (the first one, I had concluded in all honesty, was not worth rewriting).

## Macros

When my own computer was returned, I got down to Superkey and Sidekick in earnest. Telephone directories were written for Sidekick, and macros were created with Superkey to summon them to the screen. Batch files were written to copy text from A to B and back to A, it having come to my notice that frequent editing created files with non contiguous blocks and that files with non contiguous blocks were passing slow to scroll. Macros were created to invoke these batch files and beeps were built in to signal their beginning and their ending. Text was echoed to the screen to warn the unwary user of what was about to happen. Macros were created for every Wordstar command and every combination of Wordstar commands, conceivable and inconceivable. Macros were created to write my address at the top of letters, with variable fields to put in the date, the recipient's address and his or her name after 'Dear' and before a comma. Fiendishly clever variable field macros were even ▸



# Programmers

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PL/PC is an advance programming language based on APL (A Programming Language) with Modula-2 control structures. It offers an integrated interactive programming environment for the rapid implementation of applications.

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A full-featured full screen text editor is included, the editor will automatically position the cursor at the point in the source code where the last compile-time or run-time error was detected. Data are edited with a spreadsheet like data editor.

English keywords are used instead of APL symbols, eliminating the requirements for special keyboard, character generator and printer.

An evaluation package is available for A\$25. The evaluation package comes with a reference manual and it has a limit of six global variables. The standard version is priced at A\$159 and the 8087 version at A\$299.

PL/PC requires an IBM PC or compatibles with at least 360K of memory and DOS 2.11 or higher.

See quick reference guide on page 12 of November, Your Computer

## ED/PC

Fast full screen text editor for the IBM PC and compatibles. It can edit files up to 512K in size and 16,000 lines. Features include full cursor control, fast access to any part of file, regular expression for complex search and replacement, block move, copy, delete and write to file, case conversions, read external file, match brackets, variable regular tabs, horizontal scrolling, unlimited line length and auto-indent. \$79



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created to streamline the business of translating bills of lading and credit reports, most of the text in these cases being the same from one document to the next. Now and then a little writing was done, a paragraph revised, a bit of dialogue polished.



**BOTH DRIVES DOING VERY CREDIBLE IMITATIONS OF LAWNMOWERS....**

### AT Clone

Then the machine packed up again — a matter this time of both drives doing very credible imitations of lawn mowers. 'No worries,' the consultant told me. 'I'll take it away and fix it, and in the meantime you can use this machine.' This *this machine* was an AT clone with enough RAM to handle the Chinese census and a 20 Megabyte hard disk. There were no problems of compatibility between it and my own computer, and it drove the electronic typewriter at the first attempt.

### Bits And Pieces

But there was a wondrous collection of miscellaneous bits and pieces tucked away in the hard disk's subdirectories: there was a program that popped a digital clock up on the screen and sounded an alarm as required. There was a little number that not only counted words but also told you how difficult the text was to read. There was a memory-resident program that explained DOS commands. There was a doohicky for creating indices. There were things that unerased lost files and other things that erased files so that they stayed erased unto all eternity. Learning how to use all these utilities without the benefit of documentation was a full-time job; and the bills of lading and the fraudulent insurance claims kept coming in. Very little writing was done.

### MS-DOS 3.1

I was most upset when the AT clone was taken away and replaced with an inferior machine — the consultant wanted it back, presumably for some census work, and my own computer had by this time proved beyond his capacity to repair and was in the hands of professionals. The next machine caused no great difficulty. It ran MS-DOS 3.10 rather than 2.11, but mastering the few extra frills was no real problem, while getting it to drive the electronic typewriter was a matter with me of only two days work. Finding the optimum size for the RAM disk occupied only a day. And reinstalling Wordstar, Superkey and Sidekick to take advantage of the colour screen took only a couple of hours. A couple of hours, that is, every time my aesthetic perceptions underwent any sort of modification: wherefore on any given day, once Wordstar, Superkey, Sidekick, the clock, the thesaurus, the memory-resident database manager, and all the other things that are indispensable to efficient computer use were running to my satisfaction, there was ample time to devote to serious writing if I was prepared to go without sleep.



**DRIVE 'B' SOUNDING & BEHAVING LIKE A TRUCULENT SEWING MACHINE....**

### And an Amazing Thesaurus

My own computer was returned to me a couple of days ago, both disk drives sounding and behaving like disk drives. And a copy of Word Perfect version 4.1 has just been put into my hands, the way programs so often are — it has a split screen editing facility, I'm told, and an amazing thesaurus.

And they do say its macro capabilities are something else altogether .... □



# DEBTMASTER

## —Part 5

*Lindsay Ford continues the saga of his ultimate debt recovery program telling you how to search your debtor files and invert the delinquents.*

IN PART 4, WE GOT to the point where you should have a fully operational DebtMaster that only needs a few minor refinements to make it a true debt-muncher. Here, we will cover the search routine that lets you compile useful business information by listing accounts in categories you specify (or all accounts on the system). It's also valuable for finding an account you've 'lost. Call it SEA.MWB.

### SEARCHING

This program lets you print out the results of a Search to a printer using fan-fold or single-sheet stationery (A4 size), or to the screen. When you first enter it, you will be greeted by some text that explains how it works, along with three prompts. These are —

**File:** Enter the letter used to designate the filename of the file you want to search ('S' for 'S.DBT', for example) or <ESC> if you want the search routine to cover all files on the system. Press <RETURN> if you chose this option by mistake and want to go back to the Menu.

**First Phrase:** Press <RETURN> if you want to exit to the Menu, the <SPACE> key if you want to list all files on the system or enter one of the phrases you're looking for.

**Second Phrase:** Press <RETURN> if you're only looking for one phrase or listing all files on the system, otherwise enter the other phrase that you're looking for.

Take my legal practice for example. I sometimes (reluctantly) run debt cases for established clients and when these are resolved the bills are drawn up and sent to



```
00001 REM ----- SEA -----
00002 POKE 140,1: GOSUB 79: CURS 0: CLEAR: STRS(20000):
DIM A0(250),A1(250),A2(9),A3(9):F0=0
00003 OPEN "I",6,"DATE.DBT": IN#60N: OUT#0: OUT#00FF:
INPUT K3$,K0$,X: IN#0: OUT#0: CLOSE 6: F2=FLT(X)
00004 OPEN "I",6,"BASE.DBT": IN#60N: OUT#0: OUT#00FF: FOR X=1 TO 9:
INPUT A3(X),K0$: NEXT X: IN#0: OUT#0: CLOSE 6: P=INT(A3(9))
00005 W=INT(A3(1)): FOR X=1 TO 4: IF A3(X+1)>0 THEN LET
W=INT(A3(X+1)-A3(X)): REM Set W to first reminder period if
only one, or to difference between last and second last.
00006 NEXT X: FOR X=3 TO 14: CURS 1,X: PRINT [A63 32]: NEXT X: REM
Clear display panel
00007 CURS 26,3: PRINT "<<< SEARCH >>>"\ SPC(8): "File:": SPC(9):
"* - Press <ESC> if all files";
00008 PRINT\ SPC(8) "1st Phrase:***": [A30 42]\ SPC(8)
"2nd Phrase:***": [A30 42]
00009 PRINT\ SPC(26) [A12 45]\ " This program lets you search for a@
phrase or phrases that you@@@determine.@@Define search phrases@
carefully for best results."
00010 PRINT " Set 1st phrase = <SPACE> and 2nd = <RETURN> for all@
accounts." \ SPC(26) [A12 45]: CURS 24,16: PRINT "Press@
<RETURN> to Abort";
```

### Get User's Inputs

```
00011 CURS 22,5: PRINT " "; :J=0: GOSUB 64: IF X=27 THEN LET
K6$="ALL": PRINT K6$: GOTO 14 ELSE IF X=13 THEN 62 ELSE IF
X<65 OR X>90 THEN 11: REM Abort if <RETURN>, filter out
keys other than alphabetic or <ESC>
00012 J=X: K6$=CHR(34)+CHR(X)+CHR(34): PRINT CHR(X): X=0:
ON ERROR GOTO 13: OPEN "I",6,CHR(J)+".DBT": X=1: REM Display
key ("All" if <ESC>) and if only one file then see if it
exists.
00013 ON ERROR GOTO 0: CLOSE 6: IF X=0 THEN CURS 23,13: PRINT
"<<< NO SUCH FILE >>>": CURS 0: PLAY 22,1: 0,10: CURS 1,13:
PRINT [A63 32]: CURS 23,5: PRINT "*": GOTO 11: REM Error if
no such file
00014 PRINT [A40 32]: REM Clear text
00015 V=6: GOSUB 73: K4$=K2$: IF K4$="" THEN 62: REM Get first phrase
in K4$. Abort if <RETURN>. V=Vertical co-ordinate for input
00016 V=7: GOSUB 73: K5$=F2$: REM Get second phrase in K5$
00017 GOSUB 79: PRINT "Reminder Number (or <RETURN> for all)? *":
CHR(8):
00018 F4=0: K7$="": GOSUB 64: IF X=13 THEN 21 ELSE LET K7$=CHR(X):
```



# Debtmaster

whoever is obliged to pay. They also go onto DebtMaster, the 'Re' prompt being answered with 'DEBT'; (details of transaction) and the 'Reference' prompt with my initials ('LRF'). This means that I can use the Search program with the first phrase set to 'DEBT' and the second to 'LRF' to list every debt claim I've handled that has an unpaid account. I use it to identify unprofitable areas of business or employees who are not performing, but it requires adherence to a fairly rigid list of categories of business at the time accounts are entered (see Part 2).

Needless to say, 'Search' is also invaluable for mundane tasks such as locating an account where you're not certain of the spelling of the client's name. For instance, set the first phrase to 'KAT' and you may even find what you did with that account for 'MR. KATSADIMITRAKAKIS'!

Once your search phrases are defined the program will ask you to enter a 'Reminder Number'. This lets you limit the search to old accounts if that is your purpose. Suppose you're using 3 reminders and you enter '2' for this prompt. In that case only accounts of (or exceeding) the time limit specified for No. 2 reminders (that is, No. 2 & 3 reminders and delinquent accounts) would be listed. Pressing <RETURN> ignores the limitation and all accounts will be searched.

The sub-program will now ask you to test the print parameters (Screen or Printer etc.) and as they're self-explanatory there is no need for further detail. The only other thing you need to know about is 'Delinquent Accounts'. These are accounts that have gone so far beyond your account terms that your only options are to write them off or send them to your solicitor for collection (don't bother using a debt collection agency — they'll put your account on a program like this and ultimately refer it to their solicitor!). Delinquent accounts can be seen when searching on the screen by a 'DELINQUENT' in inverse text at the bottom of the display panel. In account printouts they can be identified by a star character after the reminder number. Search for them frequently as the clog up the program and limit your cash flow if you don't take some action short of homicide.

## Part 6

Get the good oil on avoiding bad debts and hear all about how to print an initial invoice with DebtMaster (*didn't think it could, did you?*). □

```
X=X-48: IF X<1 OR X>5 THEN 18 ELSE LET F4=A3(X):
IF F4=0 THEN 18: REM Let user specify legal reminder no. in F4.
00019 GOSUB 79: PRINT "Reminder No. "; K7$: " accounts and earlier@
(Y/N)? *"; CHR(8); REM Put reminder number in K7$ and let
user check it.
00020 GOSUB 64: IF X=78 THEN 17 ELSE IF X<>89 THEN 20
00021 F2=F2-F4: GOSUB 79: PRINT "Listing to Screen <S> or Printer@
<P>? *"; CHR(8);
00022 GOSUB 64: IF X=83 THEN GOSUB 71: P=0: GOTO 31 ELSE IF X<>80
THEN 22
00023 GOSUB 79: PRINT "Fan-Fold paper <F> or Single sheets <S>? *";
CHR(8);
00024 G=0: GOSUB 64: IF X=83 THEN LET G=1 ELSE IF X<>70 THEN 22
00025 GOSUB 79: PRINT "Press any key when Printer ready *"; CHR(8);:
GOSUB 64
```

If using Printer then print page heading

```
00026 OUT#0: OUT#0OFF: OUT#PON: PRINT\ SPC(30);
"(<<< DEBTMASTER >>>\" K3$: " "; SPC(12-LEN(K3$));
00027 IF K4$="1" AND K5$="" THEN PRINT "PRINT '"; K6$;
"' ACCOUNTS"; ELSE PRINT "SEARCH "; K6$: " FOR: "; K4$;
00028 IF K7$<>"" THEN PRINT SPC(4); "(Reminder "; K7$; ")" ELSE PRINT
00029 IF K5$<>"" THEN PRINT SPC(26) " & "; K5$ ELSE PRINT
00030 PRINT\ : IN#0: OUT#0
```

### SEARCH LOOP

Search each file (J>0) or the file specified

```
00031 C=0: D=4: L=53: T=0: M=J: N=J: IF J=0 THEN LET M=65: N=90: REM
C=Number of files, D=Number of Lines Printed, L=Max. No. of
Lines per Page, M=First File Searched, N=Last File Searched
00032 GOSUB 72: FOR E=M TO N: Z=0: ON ERROR GOTO 34: REM Start loop
OPEN "I",6,CHR(E)+".DBT": IN#6ON: OUT#0: OUT#0OFF: IF P=0 THEN
CURS 24,11: PRINT [A24 32]: CURS 0: REM Open File. Z=0 if
doesn't exist
00033 INPUT C: FOR X=1 TO C: INPUT A0(X),A1$(X): NEXT X: Z=1: REM
Load Accounts from File
00034 ON ERROR GOTO 0: IN#0: OUT#0: CLOSE 6: IF Z=0 THEN 53 ELSE IF
P=0 THEN CURS 24,11: PRINT "Searching File "; CHR(E): CURS 0:
REM Skip if no file, else print screen prompt
```

Search each account in file

```
00035 FOR V=1 TO C: K0$=A1$(V): IF K7$<>"" AND A0(V)>F2 AND
VAL(K0$)<VAL(K7$) THEN 52: REM Skip if reminder number set and
account doesn't exceed it
00036 IF SEARCH(K0$,K4$)=0 THEN 52: REM Skip if 1st phrase not found
00037 IF K5$<>"" AND SEARCH(K0$,K5$)=0 THEN 52: REM Skip if 2nd
phrase set and it's not found
00038 T=1: FOR X=1 TO 9: Y=SEARCH(K0$,CHR(124)): A2$(X)=K0$(;1,Y-1):
K0$=K0$(;Y+1): NEXT X: X=ASC(KEY$): IF X=65 OR X=97 THEN
NEXT*V 61: REM Divide Account into its elements in A2$. Abort
if Key <A> pressed.
00039 S=1: X=INT(VAL(K7$)): IF A0(V)<=F2-FLT(W) AND (X=5 OR
A3(X+1)=0) THEN LET S=0: REM Set S=0 if delinquent account
```

List to screen

```
00040 IF P>0 THEN 45 ELSE GOSUB 71: CURS 1,9: PRINT "Name:@@@@";
A2$(3) SPC(32-LEN(A2$(3))) "Date:@@@"; A2$(2)\ "Address: ";
A2$(4); SPC(32-LEN(A2$(4)));
00041 PRINT "Ref:@@@@"; A2$(9)\ SPC(9) A2$(5); SPC(32-LEN(A2$(5)))
"Amount: "; K0$: K0$=A2$(7): IF A2$(6)<>"" THEN PRINT
SPC(9) A2$(6)
00042 IF K0$(;LEN(K0$))=" " THEN LET K0$=K0$(;1,LEN(K0$)-1): GOTO 42
ELSE LET K0$=K0$+" "+A2$(8): IF LEN(K0$)>52 THEN LET
K0$=K0$(;1,52)
00043 PRINT "Re: "; SPC(6) K0$: IF S=0 THEN CURS 27,14: INVERSE:
PRINT " DELINQUENT ": NORMAL
00044 GOSUB 63: IF X=65 THEN NEXT*V 61 ELSE GOSUB 71: GOSUB 72:
GOTO 52: REM Wait for key. Abort if <A>
```





# STYLUS

*Forget about programming and concentrate on the structure! Sounds like a software writer's dream — and that's what Keith Mackay found when we asked him 'What's the redoubtable Phil Grouse doing these days?'*

**I**T WAS IN 1984 that Phil had a rush of blood to the head, resigned his post as Associate Professor in the Department of Information Systems at the University of New South Wales, and devoted himself to the development of his own software; two years later Stylus was ready to market.

While the redoubtable Phil is well-known to many of the readers' of YC, some may not be aware that behind his sizzling prose there lurks a computer scientist of some standing: Phil was in right at the beginning way back there in the before-before, working on some of the first computer installations in this country; and still cherishes a valve from one of these early behemoths, presented to him when he moved on to other things. And we mentioned the most recent of a number of academic appointments he has held.

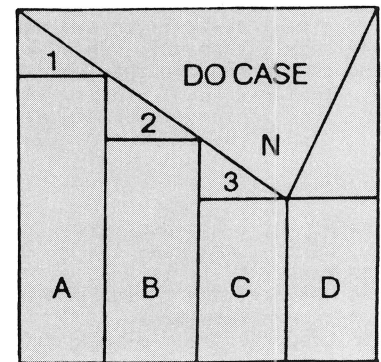
The concepts involved in Stylus did not, of course, spring out fully armed. Since the early seventies, Phil had been working on the problems of structured program design, in particular the use of flowcharts. He was much exercised by the question of how flowcharts could be used as programming tools, rather than as preprogramming aids — how, in other words, flowcharts could move from being external program documentation to become machine readable. Such an approach to programming would bring substantial benefits, cutting out the long hours spent planning a complex program with flowcharts, cutting and pasting sections of the flowchart and eventually entering the source code by hand — and almost certainly incorporating errors.

A truly machine readable flowchart would also aid in the documentation of programs: faced with the exigencies of real-life commercial programming, the programmer working from a pencil-and-paper flowchart is unlikely to correct the chart to reflect changes to the program itself. With the emphasis on getting the program running as soon as possible, there is little time for niceties of that sort, and after debugging and refinement, the flowchart eventually represents little more than a sketch of the program's design at a relatively early stage of its development.

## Naasi Schneiderman

Traditional flowcharts, however, do not lend themselves readily to transportation to the computer screen — their heavy use of diagonal lines in particular precludes their use on display terminals. However,

Phil had early appreciated the potential of Naasi Schneiderman (NS) diagrams in this connection. NS diagrams use a box structure to represent program modules with a single entry point at the head and a single exit point at the bottom and can readily be used to depict the various procedures of a program — see Figure 1.



**Figure 1.** A Naasi Schneiderman diagram — the structure represents a program module with a single entry point at the top and a single exit point at the bottom.

For the program designer, NS diagrams offer three benefits over traditional flowcharts: a greater simplicity of form; a closer resemblance to the construction of a structured program; and the limitation of the program's control constructs to FOR, IF-THEN, IF-THEN-ELSE, WHILE, UNTIL and CASE or SELECT, a restriction which makes for programs that are easier to modify and debug. If an NS diagram could be made machine readable, the processes of program design and program writing would begin to merge together.

## Flowblocks

As early as 1974, Phil had developed what he called the 'flowblock' — a refinement of the NS diagram which not only could be included within the body of a program as documentation, but was also fully machine readable and hence could be translated directly into source code. At around the same time, Phil had also developed language translators for Basic and PL/I. The one remaining problem was to develop an editor for the flowblocks themselves — without such an editor, the flowblocks would suffer from exactly the same shortcomings as flowcharts and NS diagrams: they could not be easily generated or modified.

The prototype editor was largely assem-

bled in a hotel somewhere in the Nullarbor. Heedless of the well-being of his hard disk, Phil had tossed his computer in the back of his car and left Sydney in order to have solitude and freedom to think the problem through. However — he didn't have in mind exactly the sort of solitude he eventually found: his car blew a gasket and he was forced to spend two weeks in a town with a total population of fourteen, furiously programming by day in his air-conditioned room and repairing the car in the cooler evening hours.

By the time he got back to Sydney, Phil had all but finished the editor. In the next three months, he developed an on-screen help system and perfected a translator to convert the flowblocks into Basic programs. Translators for dBase and C soon followed. And thus was Stylus was born.

The company's literature describes Stylus as 'a software writer's dream'. I am not myself a professional software writer, so I have little idea of what beguiles such folk o' nights; but I can well imagine the thought of something along the lines of Stylus easing their passage into the deep and dreamful after a hard day's debugging. Stylus will not save you from the toil and tribulation of learning C or dBase, but it will do the next best thing — it will relieve you of the irksome parts of programming and free you to concentrate on the structure of the program. Using Stylus, it becomes possible to create and modify programs as easily as text is created and modified with a word processor. Under Stylus, the NS diagram is no longer simply a preprogramming tool or a design for a program — in a very real sense, it is the program.

### And in Kanji, too!

Stylus is designed to run on IBM PC/XT, AT and compatibles. It will run on a variety of other computers, including the Apricot, the NEC APC III in native mode, and the Panafacom Duet 16. There is also a Japanese version of the program written for the NEC 9800 series, offering Kanji (ideogram) display. Stylus also runs under Concurrent DOS with multiple terminals, and under Unix on the DEC VAX.

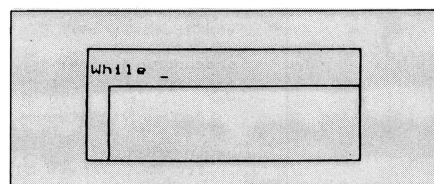
The Stylus package consists of the Stylus flowblock editor itself, an extensive help file and the language translators selected by the purchaser, as well as detailed manuals and example programs. Stylus is not copy-protected, thus it may be used from a hard disk or individual

translators may be copied to other floppy disks. Translators are currently available for Basic (all dialects), Pascal (including Turbo Pascal), Fortran 77, C, PL/I-86 (G-Level), and dBase II and III. COBOL and Prolog translators will be available in the near future.

When the program is loaded, the user is asked for a module name and a short description of the program. The empty flowblock box is then displayed with the module name at the top and the description at the bottom of the screen. Standard WordStar commands are used for cursor movement and text entry. Controlled blocks are created using the Function keys, and movement from block to block is done with the Home and End keys.

Each block may carry comment lines, which can be displayed or suppressed as required. On-screen help can be summoned at any time with the standard F1 key, and the package also offers a short tutorial on structured programming. A common notational basis is provided for all the control constructs of structured programming, the key-words IF, CASE, FOR, WHILE, UNTIL and CALL remaining constant. Extensions such as the Pascal WITH block are also allowed.

As an example of the creation of a WHILE block, the user presses F2 to create the block and the screen shows the block with the cursor flashing just after the WHILE, waiting for the test condition —



Using 'structured English', the completed block might read as shown in Figure 2. After the logic has been checked, the English can be replaced with the realities of the language selected.

### Transactions

```
Open the transactions file.
Read first record into the buffer.
While not at end-of-file
    Process record in the buffer.
    Read next record into buffer.
Generate exception report.
Close all files.
```

Figure 2. The completed WHILE block using 'structured English.'

### Shell

```
Input "How many items to sort? ",Count
Dim Item$(Count) :Rem Array to sort
For i = 1 to Count

    print "Item":i;
    input Item$(i)

Span = Count
Until Span=1

    'Cut the Span width.
    Span = INT(Span/2) : J = 1
    Lim = Count - Span
    While J <= Lim

        Lo = J
        Until Lo < 1

        'Need to interchange?
        Hi = Lo + Span
        If Item$(Lo) > Item$(Hi)

            Tmp$ = Item$(Lo)
            Item$(Lo) = Item$(Hi)
            Item$(Hi) = Tmp$
            Lo = Lo-Span

        J = J+1

    print : print
    For i=1 to Count
        print i,item$(i)
    print: print
```

Figure 3. A Shell sort algorithm in Stylus; the operational language is Basic.

### Nested Control Blocks

Stylus also allows nested control blocks. Figure 3 shows a Shell sort algorithm in Stylus; the operational language is Basic.

Once a flowblock has been completed and checked, the translator generates a file of the appropriate type: .BAS for Basic, .PAS for Pascal and so on), with the source code indented. These files are in simple ASCII format and may be input to a compiler or interpreter. Provisions are made to use special constructs for variants of a given language.

As an example of a complete program, Figure 4 shows the flowblocks for a Sound Demo and the source code generated by Stylus in Turbo Pascal.



## Flowblocks

## Source Code

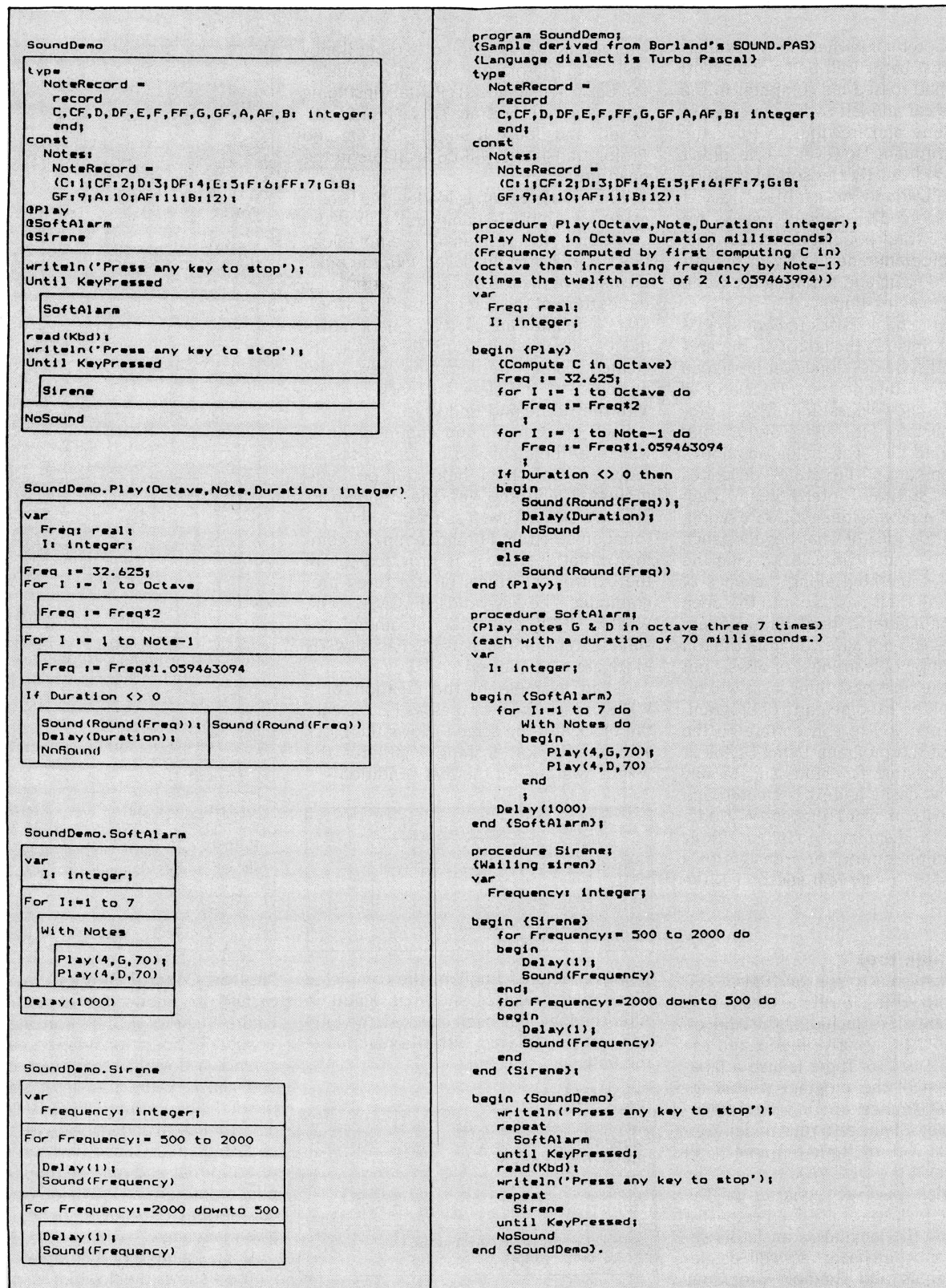


Figure 4. The flowblocks for a Sound Demo and the source code generated by Stylus in Turbo Pascal.

*He was much exercised by the question of how flowcharts could be used as programming tools, rather than as preprogramming aids.*

Stylus would appear at first sight to be a program aimed primarily at a very small and specific market sector — the professional software writer. It does, however, have another important role. As well as a programming tool, it can also function as a learning aid, helping novices to learn the principles of structured programming in any of the languages supported. Using the editor alone, a teacher may use Stylus to develop programming concepts independent of specific languages. Indeed, a number of Australian TAFEs, CAEs and University departments have taken out site licences to use Stylus.

Want to know more? The Basic Translator and Editor will set you back \$336 untaxed; other Translators plus Editor run to \$1120 each (untaxed) with discounts for quantity or site licences. You can get technical help on Stylus by dialling (047) 57 3482; marketing is on (02) 465-965. □

#### RIP's Poems IV

My Micro B  
Has a sticking quay.  
It's a quay I use a lot,  
Not a comma or a dot.  
It may add flair to my poetry,  
But I wish the bloody thing was fr .

- RLP

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# The Prophet Speaks —

## Build Your Own Bulletin Board

### - Part 2

*So — you want to have your own Bulletin Board? Larry Lewis, sysop of the Prophet BBS, continues his series and gets down to brass tacks and black boxes for the YOBB.*

**A**S I MENTIONED in Part I (YC, October '86), you have two choices for the software to run that Bulletin Board you want to build. You can use an existing system, either public domain (and there are some good ones) or a commercial product (like TBBS). There is one other option: start from scratch and write your own.

Prophet has been running TBBS for three years; but, like most systems written by another person, there are things I like about TBBS and others I despise. Then, when Prophet acquired a multiuser machine from AED to run a true multiuser bulletin board there was nothing around that would run in a true multiuser mode.

So the fateful decision to write a new system from scratch was made. One of the worst features from my point of view was that the new system had to be at least as good as TBBS. Not easy, since TBBS is a commercial product that has been around for over five years with the author living on the earnings and continually refining the product — what a job!

Well, you probably think the first thing I did when starting to write *my* system, was to start writing code, right? *Wrong* — the first thing I did was to look at as many different bulletin board systems as possible, even running some to have a closer look at their operation. Then I set about learning much as I could about the computer and operating system that I would actually be using — in this case, the AED.

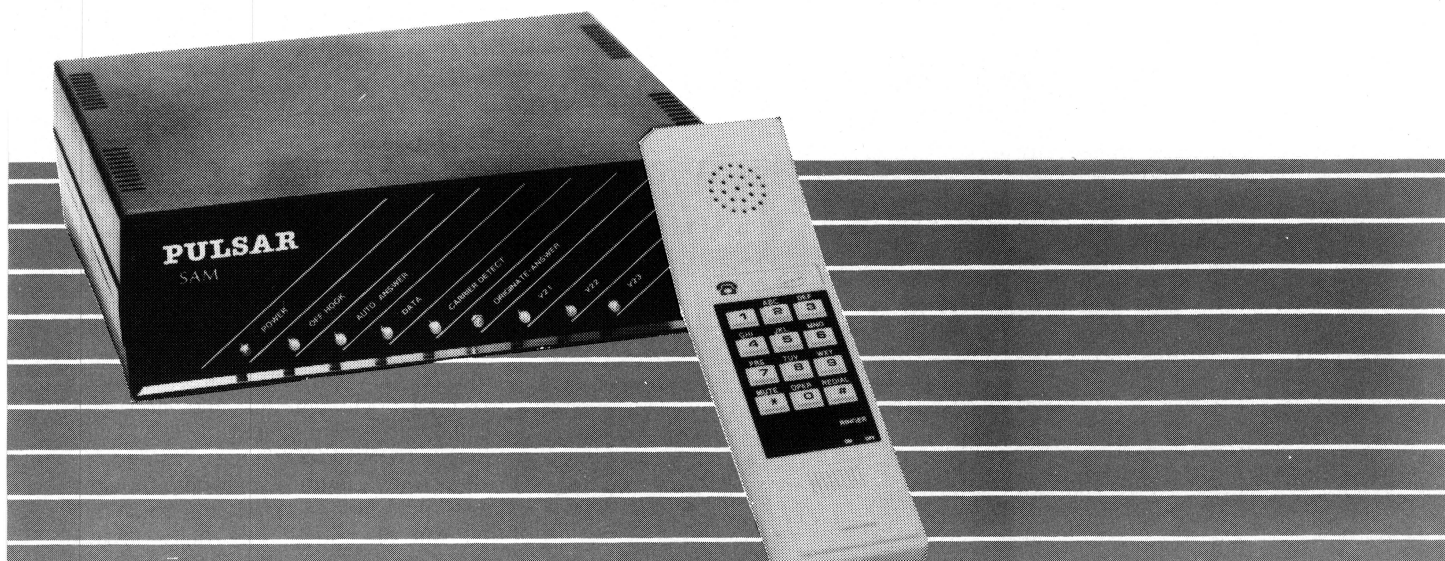
Apart from playing with a few routines

```
>
>
>Why does everybody ignore MSX?
>If you're interested in forming
>an MSX User Group leave a
>message on the system for Mike
>and I'll get back to you with
>details of a first meeting.
>
```

```
>
>
>Computers wait till the day is old,
>They wait until the floor is cold,
>They wait until your spouse is bedded,
>Saying she can't see why it's you
>she wedded;
>They wait until the midnight chime,
>Till you mutter "One more time,"
>Then they show that bug internal,
>And prove again that they're nocturnal.
- RLP
```

```
>
>BILL -
>THESE ARE THE LINES THAT ARE CAUSING ALL OF THE TROUBLE:
>
>120 SCREEN2,3:GOSUB 4500:COLOR16,2,2:CLS:OPEN"GRP:" AS
>#1:PRESET(0,0):DRAW"C11RZSS019ZLZSSU19ZBRBD27C0188BR3U
>B8BR3D166BR3U188BR3D188BR3U188":PRESET(247,2):DRAW"
>C6D188BL3U166BR3U188BR3D188BR3U18888BR3D166BR3U188BR3D188U
>125 FOR N=1 TO 8:SOUND N,104:NEXT:SOUND 10,104
>130 COLOR12:PRESET(53,150):PRINT#1" CP/M IS DEAD"
>140 FOR A=255 TO 25 STEP-1:PUT SPRITE1,(A,5),15:NEXT A
>145 FOR A=255 TO 50 STEP-1:PUT SPRITE1,(A,15),15:NEXT A
>140 FOR A=255 TO 75 STEP-1:PUT SPRITE1,(A,29),15:NEXT A
>140 FOR A=255 TO 100 STEP-1:PUT SPRITE1,(A,36),15:NEXT A
>140 FOR A=255 TO 125 STEP-1:PUT SPRITE1,(A,47),15:NEXT A
>140 FOR A=255 TO 150 STEP-1:PUT SPRITE1,(A,55),15:NEXT A
>140 FOR A=255 TO 175 STEP-1:PUT SPRITE1,(A,61),15:NEXT A
>140 FOR A=255 TO 200 STEP-1:PUT SPRITE1,(A,77),15:NEXT A
>140 FOR A=255 TO 225 STEP-1:PUT SPRITE1,(A,77),15:NEXT A
>
>HOPE YOU CAN MAKE SENSE OF IT NOW. HOW'S THE WIFE?
>
>
>
>
```

# Your Own Bulletin Board



and programs, at least three months went by in 'just looking' mode. The desire to go at the task, boots and all, was (almost) overwhelming, but I knew that I wanted the best possible system with the first version of the software.

While all this research was going on I met one of the Prophets' users professionally (we both work in data processing for large companies) and almost before I knew it, Prophet had two dedicated developers working on the system.

One of the very first things we did was work out a machine level I/O (input/output) system. (So what, I hear from the back — well, we thought, maybe if we only had to worry about one user/port, that shouldn't be too hard — just a matter of read and write characters. But, we had eight possible users, and we wanted to be able to run the BBS on other machines and operating systems without needing to change pages and pages of code for each version.)

The basic I/O system was put online with just a utility program that displayed a status report to the caller and then logged them off. While this *incredibly* complex system was running, we started planning the enhancements (like a working system).

After a few brainstorming sessions (with associated liquid refreshments) to work out what services would be provided by the new system, the serious task of identifying what would be developed as functions to be used throughout the entire system — we decided to use C as it seems the best and most portable language for the job at hand. (You have been reading Les' C Programming series, haven't you?)

The main advantage in writing 'global' functions, apart from not having to key in the code more than once, is that you create a standard way of doing things. This

has far reaching benefits — you can concentrate on getting the program/feature done and not worry about side issues like security, screen control, timeouts and the rest of the monkey work, because it's already done. This is called 'black box design' — you design a function that you feed stuff into and it always returns a predetermined response.

From the users point of view, this approach allows the system to present a consistent interface, which is a form of 'user friendly'. The user only needs to learn one way of doing things, so that as new features are added, they are easily learned.

So that you're ready for the coming chapters of YOBB (Your Own Bulletin Board), these are some of the topics we'll cover —

System Character I/O Low (Machine) Level  
System Character I/O High (System) Level  
Runtime Organisation — Initialisation & Logon  
Runtime Organisation — Time Out/Time Limit  
Runtime Organisation — Carrier Detect and Flow Control  
Runtime Organisation — Stack Processing (Command)  
Menu Command Language — Primary User Interface

Access Control Facility — Security  
Message System  
User File System  
User Information Online & System Status  
Interuser Chat Facility  
Conference Online Facility  
Network Theory & Strategy  
I hope that whets your appetite! Well, until the next YOBB session bye for now.

## ATTENTION Modem Suppliers

Well here I was all finished for the month

and I get this call "HELP, Larry! We need someone to start looking at modems for our communications issue in October and, besides, wouldn't it be a good idea to cover modems in conjunction (*that's editor talk*) with YOBB?" So now I have to review modems, its been so long since I had to look for modems...

OK, all you modem suppliers out there — so that I will be fair to one and all here is the plan: there will be at least two categories of modems. These are 'the personal modem' (under \$500 with at least V21/V23 and a little smart), and 'the up-market modem' with V21/V23/V22/V22bis and definitely smart for more serious use.

So don't say I didn't warn you! You make a modem you had better contact me and let me get into it. By the way, I only touch real Telecom approved modems — pending is bending, comply doesn't fly, if Telecom don't say use it you get it back! Did I mention I have one of those exchanges that make most modems turn to water (*still game?*).

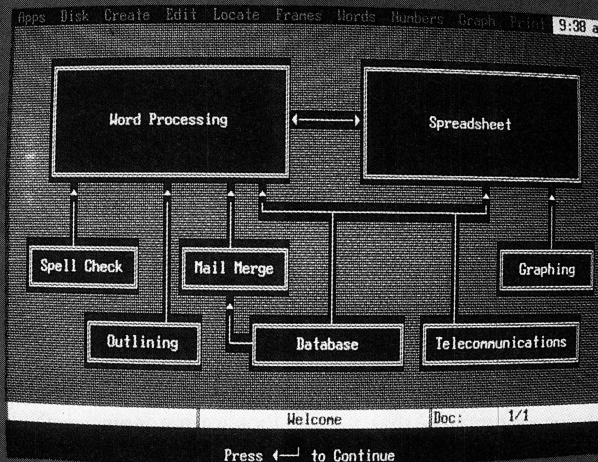
Please contact me by post PO Box E41, Emerton NSW 2770. Prophet V21 is 628-7030, or AED-Prophet (V21/22/23/22bis) is 628-5222. Now, who the hell was it that volunteered me for this ... □

## Gaps in Parts?

MISSED PARTS of any of our YC Tutorials? Well, you've got a second chance — We'll forward photocopies of any Parts of any Tutorial we've published in the last 2 years for \$0.50 per Part plus \$4.00 post and handling within Australia (overseas postage additional). Please identify the Tutorial by its complete name and specify your missing Parts (of the tutorial). All but the latest of our Tutorials are listed in YC's 5-Year Index, published with our July 1986 issue: refer to the Services page on how to obtain Back Issues.



# FRAMEWORK IS A PICTURE II!



*This is not a frame-up, just the latest move from Ashton-Tate towards the perfect all-in-one package. And Gordon Castle doesn't just paint a pretty picture, he reveals the true colours of Framework II Version 1.1 (it's palette-able!).*

**T**HERE IS AN AURA that surrounds names like Ashton-Tate and Framework. When the opportunity arose to have a look at the latest release, I eagerly awaited the arrival of this front-runner in the 'Integrated Software Stakes.' It's a single program that combines (principally) word processing with a spreadsheet (until you scratch the surface, that is). As I delved deeper into the features, I was constantly surprised at the degree of flexibility and power at my disposal.

Amongst all this sophistication, there is the feeling of an underlying philosophy of organised simplicity and calm. There have been substantial improvements since the first generation of multi-purpose applications hit the market only a few years ago (had the term 'user-friendly' even been invented then?) — Framework II boasts a very friendly menu-driven desktop inter-

face; it's similar to the familiar pull down menu blinds. Your thoughts, ideas and data are linked together by a series of (you guessed it!) 'frames.' Having mastered the basics, I found myself quickly becoming both effective and productive.

Framework II is not pretentious. It makes no claim to be an alternative for dedicated applications. There are more appropriate packages if your specific need is for, say, a database or business graphics or a communications program — some from this very same stable. What it does offer is a powerful collection of programs whose capabilities won't be quickly outgrown. On the contrary, you'll probably find, as I did, that *your* capabilities will develop with Framework. Something that adequately replaces half-a-dozen of the most common types of software, must be close to ideal for 80 per cent of users.

Now that I've had my say, turn down the

lights, get comfortable, and enjoy a few frames —

## The Frame

When I was ready to open the package, Framework II's shrink wrapping practically melted away from the vinyl-covered, slip-case holding the manuals and disks — a large 3.5 kg case holding four manual's worth of documentation and *nine* disks. Then, a red sticker caught my eye: 'COPY PROTECTION REMOVED see inside ...'

Praise the C(z)arr! Everywhere thoughtfulness abounds — spiral bound manuals that can be folded back (less desktop competition); extended rear covers for instant bookmarks; folders with sleeves for the disks; templates; quick reference cards; Framework labels for work disks; Framework labels for master disk backups. Hmmm ... *Brownie points here!*

Framework needs a PC-DOS 2.0 (or higher) machine, at least 384 Kbyte of RAM and, hopefully, a hard disk to run — large RAM disks in memory expansion boards are quite acceptable. I ran the ID program and then backed up the master disks with the builtin DISKCOPY function (wonderful!). The next step is to run the set up program and prepare yourself for a pleasant surprise — this program can be tailored for almost every type of device: computer, monitor, printer/plotter, and modem. This is a superb installation procedure!

And tips and suggestions abound! Extras available with your particular version of DOS are given along with the special requirements of Config.Sys and Autoexec.Bat. It's all presented in a relaxed fashion that keeps the novice calm. Notable here is the advice on memory resident programs such as Sidekick and Prokey — most of the functions these offer are available from within Framework using just a few keystrokes, for the most part.

The entire installation process took less than 20 minutes on my clone, with its 20 Mbyte hard disk and 640 Kbyte RAM. The printers I used were generic and included both dot matrix and thermal transfer types. A laser demo was brief, but dramatic.

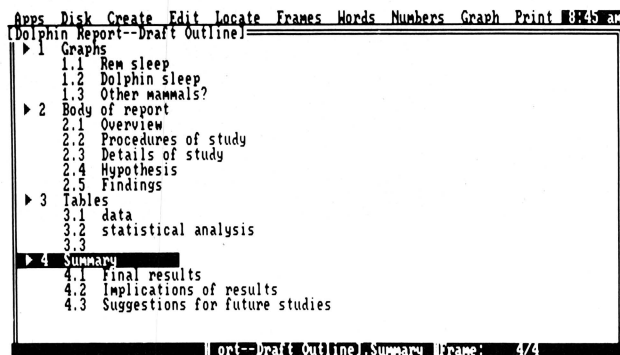
Welcome to the land of memory, rather than disk bound, applications, I thought. File Manual 1 away, only three to go.

## The Program

The modules within Framework include word processing, a spreadsheet, a database, graphics, a communications pro-

# Framework II

The basic outline of ideas as they occurred, in this instance, for a study on dolphins —



With the basic outline at hand, a loose collection of ideas can soon develop a structure of its own.

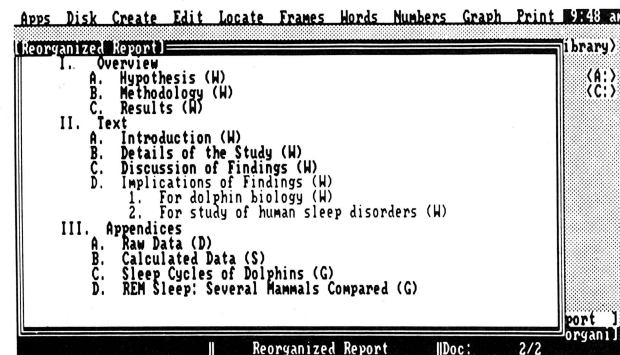


Figure 1. Framework's Outline feature allows the user develop a 'table of contents' for thoughts on a particular subject.

gram, a programming language (FRED for FFrame/Editor), DOS, and sundry utilities. 'Sundry utilities' includes Spelling, which has an 80,000 word British dictionary plus a Personal dictionary that irons out your own bugs like Meg. or Kb. and can help give an air of consistency to your style (Now, do I hyphenate 'backup' or was it two words, maybe one?); mailmerge, labels and so forth. These are all accessed with a common command set. Having worked in one module, the others are all a snap — simply follow the menu options. Default settings can be changed by re-running the set up program and changing them as appropriate.

## Outlining

Much of the simplicity in working with Framework is achieved by linking thoughts in 'frames' — think of these as an outline, or table of contents, to your thoughts on a particular subject. (See Figure 1.)

Thoughts can be listed as they occur and then each subject can be broken into relevant sub-divisions, which are themselves frames; a loose collection of ideas develops a structure of its own almost naturally. Hence, frames contain frames and each frame may contain any data from any of the modules. This *very* easy to use technique, made life noticeably more tolerable.

Each frame can hold up to 64,000 characters. If this sounds limiting, you've missed the point of outlining. With 2 Mbyte of extended memory, your capacity approximates 700 text pages, 32,000 spreadsheet cells or 3200 database records (with 640 Kbytes, this equates to 150, 8000 and 1000 respectively.)

Framework utilises Virtual Memory, where your disk drive acts as an extension of RAM. Swapping data slabs the size of these, is slow. (Roll on the mighty 80386 and DOS 5.0!) However, you may install three favorite programs to be run from Frame-

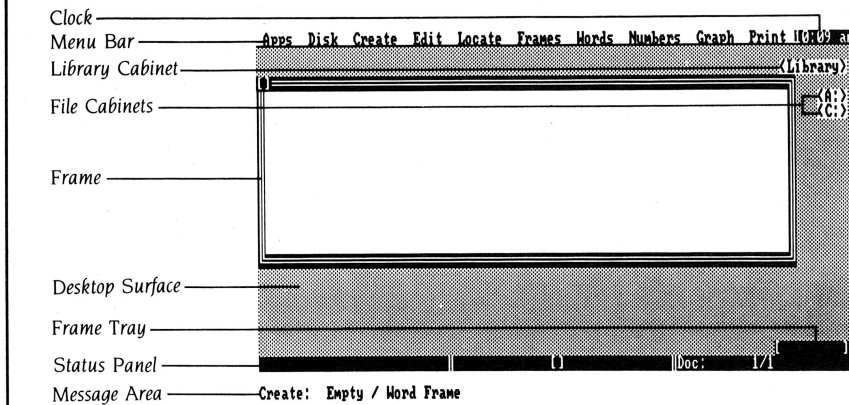


Figure 2. The Desktop — the interface between you and Framework.

work directly — dBase III+, for example, is a quaint, menu-selectable option when installed.

## The Desktop

The interface between you and Framework is the 'desktop.' As shown in Figure 2, ten menu selections cover the top of the screen and include Disk, Create, Words, Numbers and Graph. Immediately below the clock in the upper right corner, appears the Library which contains all those daily necessities like macros (Alt-KEY standard), and your phone directory and appointment schedule. Below this are shown the disk drives deployed - these are your file cabinets. On the bottom right of the desktop appears any files you may be working with — your frame tray. Below the desktop is the status panel and any appropriate message lines. Menus and status panels always remain visible (except when accessing DOS) whilst the desktop may vary from empty to a full screen (29 lines) of data.

Pressing the INS (for 'instruct') key once opens the 'Create' menu — I customised this to my own CTRL-key combination: ^C for Create. (The INS key always opens the

last menu worked on, or the Create menu by default). Menu items not available in the open menu are shown in italics. Height and width of fields, and records in a database, for example, are not available in a Word Frame. Make your selection, press Enter, and the desktop springs to life.

Moving about the desktop requires a little conditioning. And herein lay my biggest surprise so far — the cursor key pad, scroll lock, and plus and minus keys, do all the navigation. The Num Lock key and numeric key pad are redundant. This isn't a major obstacle, and I soon became familiar with it. Once you move to the inside of a frame, full cursor control is a joy. But, across the desktop — that's another question.

Many users are not touch typists, myself included. Once there's one user in an office, I'll bet everyone will want to use Framework, so I think it's about time Ashton-Tate included a driver for a mouse since that's the preferred method of control for many. We know you're out there Mr Ashton, so in the very next update... please?

Function keys are simple and straight



forward to use. F1 is the online help, which is always available — screenfuls of it! F2 brings up a cell's formula for editing. F3 moves frames across the desktop. F4 changes the frame size on the desktop from the default settings. F5 recalculates formulae; F6 extends the size of the highlighted area; F7 moves blocks; F8 copies blocks; F9 zooms a frame to fill the screen. F10, used in Database, lets you switch between three views of the data: table, forms, and dBase; used in Outline, it's a toggle between the outline and contents views. Lovely. If you loaded Graphics.Com, screen dumps are available with SHIFT-PRtSC.

### Working With Words

'Working with words' is how the manual describes the wordprocessor and it's certainly an apt phrase. Herein lies Framework's greatest strength and this module in itself would probably justify the purchase of the package (price aside, of course!). I found that my output with it could leave what I've done on other packages by the wayside. The frame concept (as used with outlining) is the secret. Insert text (the default) is rapid; Move and Copy data from spreadsheet and database are just as quick. The degree of integration in this program now really began to shine through.

Text styling simply requires invoking the Words menu for normal, bold, italics, and underline (or combinations thereof). From the same menu, other options include paragraph formatting, indenting, margins and tab sizes. Page breaks may be forced before the 66 line default, although this option is only available in Word frames. As the document takes shape, finesse can be added with soft hyphens, non-breaking spaces and the inclusion of headers and footers. Columns of text may be created by positioning frames alongside each other or by pre-defining a spreadsheet frame's column and then including it with the word frame.

Comprehensive Search and Replace allows for the inclusion of frame labels, contents and formulas. Global wildcards may be used, and upper or lower case is catered for. Further refinement is given in a Personal dictionary and the basics of separate Computerease and Business dictionaries are included in the package. The Message line offers a phonetic Suggest, Edit or Go On. Add Word puts your own peculiar spellings in a specialty dictionary.

Generated words are checked against

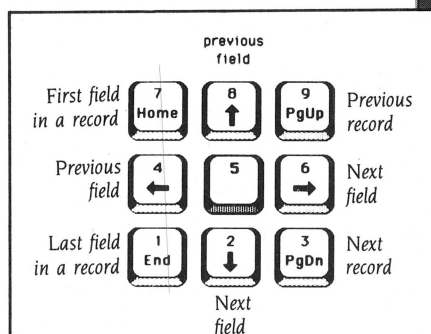


Figure 3. Moving around in a dBase file is made easy with the key pad.

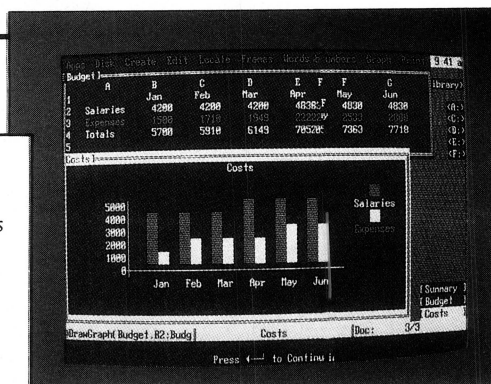


Figure 4. Data can be selected from database or spreadsheet frames for graphing in a variety of formats. If the data source is linked to the graph frame, the graph is automatically updated as modifications are made.

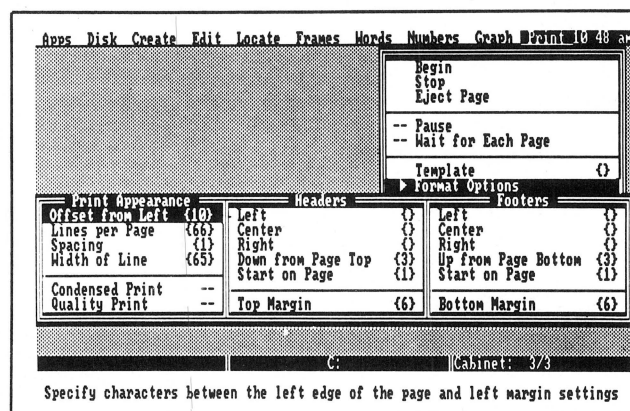


FIGURE 5. The format options submenu — professional presentation of documents is hard to avoid!

single word references. And there's even a Word Count.

To run DOS or other programs from DOS, you access the Disk menu. DOS runs within a word frame and a transcript is available for editing if desired. In addition, the Apps Menu allows you to run any three DOS or FRED macros — this is used to load and run dBase, for example. The Disk Menu also allows multiple alien data formats to be imported and exported. There are file conversion facilities for dBase II/III, IBM Displaywrite, Wordstar, Multimate, Lotus, Visicalc and ASCII text.

Text styles not available within Framework, such as super- and subscript, appear as bold and underlined text upon conversion. Large word processing documents are automatically broken into appropriate subframes and suitably labelled with page and line numbers. For those not faint-of-heart, FRED can be used to convert formats not included in this submenu. These however, like the program enhancements Timeframe (a calendar and office program) and Framelock (encryption) may be best left for others to write at least for the novice.

### Application Frames

Now, I began to feel the benefits of total integration. I felt comfortable, despite having entered a new application environ-

ment. Once the basics of one module are mastered, it's easy to identify with the old and the new menu options in another. The concepts are interchangeable — spreadsheet rows and columns are the database records and field, for example. Another example: the 64,000 characters or macro keystrokes allowed in a cell or field are themselves a complete and individual frame.

A database frame may be tailored to suit the particular application. Table View gives a tabular format, which is great for reports and mass data entry. Form View allows free floating frames for fields and can be used to design forms for data entry. DBase View presents a straight listing of fields. These latter two are useful for selective data entry, and moving around a dBase file is made as easy as pie by using the numeric key pad — see Figure 3.

FRED formula filters, at the frame label level, will calculate and create new columns, select records for reports and update a spreadsheet when modifications have been made. Search is enhanced by wildcards and the ability for ascending and descending sorts. The facility for mail-merge and the associated labels is there, too.

Spreadsheet frames are similarly flexible — just switch from English to reference co-ordinates, altering height and

# Framework II

width as required. Confidential data may be removed from view or printing, by narrowing the column. Number formats are general, integer, fixed decimal, currency, business, percent and scientific. Styling is readily available for text and numerals with bold, underline, justified and so forth. I found that FRED must be employed to calculate results, however — but, by now I had mastered at least the basics of this language and had no real problems.

Graphics may be utilised by simply selecting data and then making an appropriate menu selection. Your choices include bar, stacked bar, line, marked points, X-Y, and high-low-close. Overlaying graphs is permissible, with the exception of pie and X-Y types. Linking to a database and/or spreadsheet allows graphs to be redrawn whenever modifications have been made to the data. The first clues to the real power of FRED are to be found here. Tucked in on the Apps disk are instructions for creating 3 D histograms.

Two of the greatest enhancements to Framework II are the complete integration of Printing and Communications. Those now-familiar popdown menus are major factor in this program's appeal. Documents are printed as WYSIWYG, with the exception of headers and footers. These wouldn't normally be used until format completion, so that doesn't present a major problem. The range of submenu selections is impressive, as can be seen in Figure 5. Professional presentation of your documents is hard to avoid and the inclusion of frame labels gives that finishing touch to any formal document.

Communications are also a greatly simplified matter. A number of pre-defined services appear from the Apps menu, although they are all US services. These are amongst those defaults that can be changed by re-running the set up program — define your settings, enter the number and name for the new default and write them to disk in your FW directory. Up to nine services can be listed this way, with additional services stored on disk. Framework's default assumes a Hayes compatible, autodial modem although many others are supported.

The default changes are automatically captured in what is essentially a word frame. Before reaching the frame limit, a warning is issued so that you may allocate more memory or 'Capture to Disk.' Terminal emulation includes Digital VT-100,

Teletype 920, IBM 3101, LSI ADM 3A and ADDS Viewpoint. Protocol included are Xmodem, Clink & Crosstalk, and Hayes Smartmodem.

Programming with Fred is not for the novice — it's a powerful and extensive language. The high level of data manipulation in spreadsheets and databases is only the tip of the iceberg. The capabilities are amply revealed in the on-disk tutorials. Once addicted to FRED (I am informed by a reliable addict), almost any application is possible. Programs are complete and structured; they rank on an equal footing with Pascal and dBase. With around 160 functions at your disposal, it is little wonder Ashton-Tate recommends further reference texts.

## Learning To Frame

You are provided with two tutorial disks and, effectively, three manuals, all of which are excellent in content and presentation. And, online help is always at your disposal with the F1 key, of course. There is a logical progression as you develop skills and delve further. The environment gives the new user the confidence to continue tackling new tasks.

The tutorial disks give a reasonable demonstration of the program's power. Disk two takes a light hearted, hands-on approach as you apply to join a Spy Academy. Each topic is broken into three sections: Tour, Power Tour, and On Your Own.

FRED guides you along with comment, prompts and testing. On completion, it is tempting to immediately invoke the program.

If there is a weakness in the documentation, it's the fleeting glance given to FRED in the manuals. Communications, on the other hand, receives excellent coverage.

## Summary

It would be a difficult task to find someone that was not impressed by this product. I believe that Framework II on its own would suffice for the needs of most — maybe 80 per cent — of all user needs and would be suitable in almost any commercial environment. Throughout all the modules, I found no glaring deficiencies, but Framework's (often different) approach to some functions means you've got to shake off past conditioning. The ease of learning (and using!) Framework, makes it well worth while to recondition yourself.

There are certainly dedicated packages that offer more versatility in their own arenas, but, a collection of unrelated programs, doing essentially the same thing as this one, seems rather pointless. In this respect, Framework represents excellent value for money. The total integration and friendly interface will make sure it's well-used once you've got it up and running — I've certainly found space on my disk for this new found joy.

Highly recommended! ☐

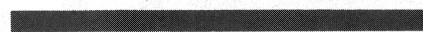
## Product Details

<b>Product:</b>	Framework II, Version 1.1
<b>Manufacturer:</b>	Ashton-Tate Torrance, California
<b>Review Copy From:</b>	Arcom Pacific 263 Alfred Street, North Sydney ????
<b>Price:</b>	(02) 957 4678. \$1,295 plus tax

## Ratings

POOR      GOOD      V.GOOD      EXCELLENT

### DOCUMENTATION



### EASE OF USE



### DESIGN



### RELIABILITY

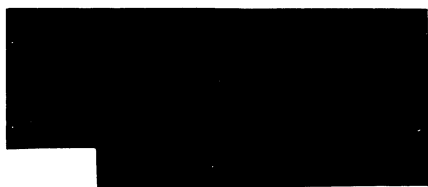


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## SMARTKEY

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Available for IBM and compatibles (SmartKey 5.1), MS-DOS and CP/M-86 (SmartKey II Plus), CP/M-80 (SmartKey II) **Price: \$81\*.**



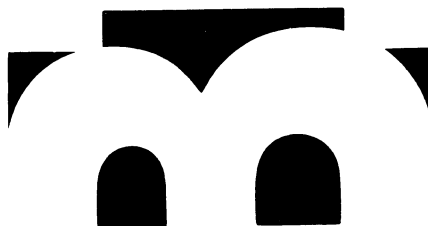
## PC-ALIEN

An easy to use program that lets you read, write, and format disks from different CP/M and MSDOS machines! Speak to more than 220 other computers.

If the disk format you need to access is not included in the current menus in PC-Alien, just send us your formatted CP/M or MSDOS diskette containing more than 50% readable ASCII text and we will try to add that format to PC-Alien's comprehensive list.

With the appropriate hardware, PC-Alien will allow you to read 3.5 inch, 80 track and 8 inch formats in CP/M-80, 86 and MSDOS.

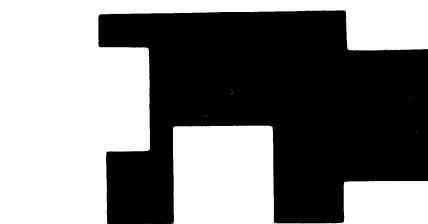
Available for IBM and compatibles **Price: \$104\*.**



## SMARTSTUFF

A collection of "pop up" desk tools which you can tailor to your needs. A full featured resident screen editor/ notepad. A programmable calculator. A sophisticated financial calculator. A calendar alarm clock. A telephone dialer. A DOS menu which lets you use common DOS commands. Also includes a program which lets you interrupt an application, run any other program and then return to the application just where you left off.

Available for IBM and compatibles **Price: \$104\*.**



## SPATH

A terrific hard disk space-saver which eliminates the need for multiple copies of overlay and other program files on disk. Run any program that uses overlays, help, or other auxiliary files from any directory, sub-directory or disk drive. Group documents or data files into separate directories and subdirectories without keeping copies of your software on each one. SPATH is easy to use and once installed it may be autoloaded and forgotten.

Available for IBM and compatibles, other MS-DOS **Price: \$33\*.**



## PC-EIGHTY

Don't throw away your old favourite CP/M-80 software! Now you can run it at full speed on your IBM-PC or compatible. By simply exchanging the 8088 CPU chip in your machine with the latest state-of-the-art NEC V20 chip you retain 100% compatibility with other hardware and software.

The V-20 also runs 8080 (not Z-80) code at full speed. With our PC-Eighty software, you can run your copy of CP/M version 2.2 as a task under DOS. With hard disk access, a half megabyte RAM disk and simultaneous use of DOS resident programs like SmartKey.

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# Software

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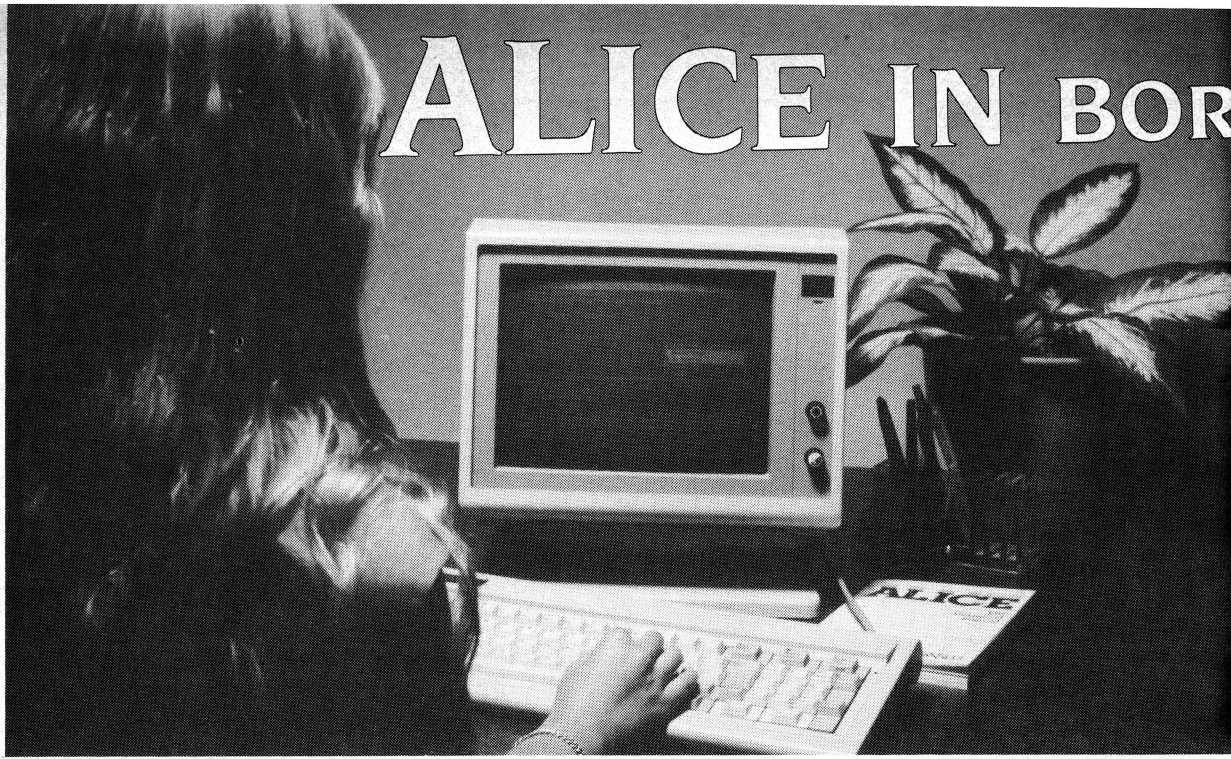
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# ALICE IN BORLAND



**W**ITH BORLAND'S TURBO Pascal clocking up sales in excess of half a million copies worldwide, another Pascal has to have some pretty outstanding features in order to compete. Alice, the Personal Pascal (from Looking Glass Software), is making a brave attempt to wrest some of the spotlight away from Borland.

Alice runs on MS-DOS computers, and needs 256K or more. The Pascal interpreter is supplied in two versions in the package. The first forms the foundation for the language's programming environment, and is fully integrated with the editing, help and debugging systems. The second version of the interpreter is independent of the other Alice components, which means that you can develop standalone programs.

Alice caters for programs which are

*Alice, the Personal Pascal, is taking a trip into the Borland of Turbo Pascal. Tim Hartnell found that she's got some fancy features in a dynamic environment — you don't even need to ask the questions!*

larger than 64K. In addition, there is a full-screen text editor with a multi-level undo capability. Of particular interest are the help screens. There are more than 500 of

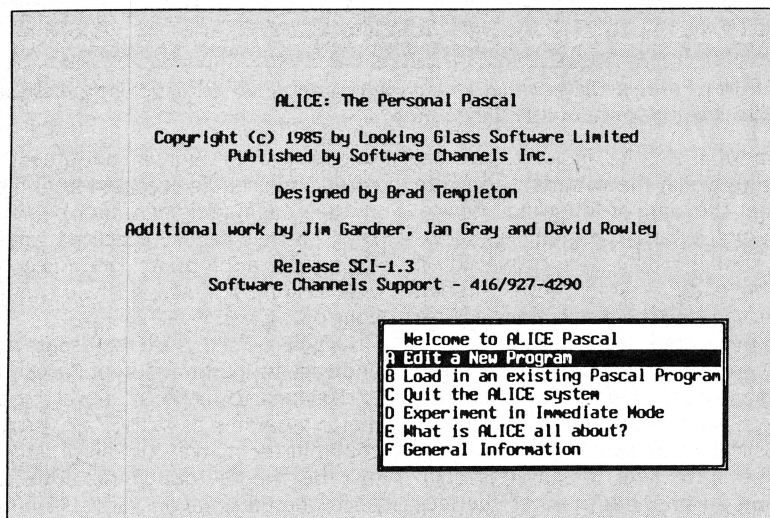
them, and they are 'context-sensitive', which means you'll generally be given fairly intelligent assistance when you have problems. You can effectively ask questions like *What can I type here?* or *What program called this subroutine?*

Questions like the first one bring up a menu of all the inputs which are legal at that particular point in the program. When you're about to enter a statement, Alice can list the various kinds of statements which are supported by the language. And the help is not just limited to Alice features, as it works as an instruction manual on Pascal in general.

If you're interested in developing professional-quality programs in Pascal, the Alice approach is definitely worth considering. As you can see from the description above, Alice is a fairly advanced programming environment, in which you can first learn to work in Pascal, and then proceed to produce major programs.

The heart of Alice is the syntax-directed program editor. Unlike normal text editors, the Alice program editor is locked solidly into Pascal, and because the editor knows what you can, and cannot do in the language, it's constantly on the lookout for syntax errors. This helps ensure that your programs don't fall apart, time after time, because of trivial syntax errors or typing mistakes. The editor does things like count brackets, to make sure they balance, and ensures you don't use undeclared variables (venial sin number one in the land of Pascal).

Once you've written your program, you can single-step through it, executing one instruction at a time. Many operations such as printing out, or changing the values of variables, can be performed between instructions, which makes debug-



Alice's introductory screen and opening menu.





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## Alice

```
F1:Run 2:Step 3:Del 4:Ins 5:Chg 6:Debug 7:Menu 8:File 9:HELP 10>Select Sh9:Misc
{ -----Immediate Statement Block-----
Declarations
begin
Statement
-----End Immediate Statements-----}

ALICE: The Personal Pascal Men 13+128K File: <None> WS: main
```

The Immediate Mode screen — Pascal instructions for immediate execution are typed into the top half of the screen and the output is shown in the bottom half.

```
F1:Run 2:Step 3:Del 4:Ins 5:Chg 6:Debug 7:Menu 8:File 9:HELP 10>Select Sh9:Misc
program Program-Name(input, output);
{Comment that says what the routine does}
Declarations
begin
Statement
end.

ALICE: The Personal Pascal Men 12+128K File: <None> WS: main
```

The Edit a New Program Option brings up a program template — simply fill in the underlined 'placeholders' and you've written a Pascal program.

ging somewhat simpler. In addition, there is a feature which the wizards who wrote Alice call the 'cursor-following' device. While your masterful program is executing, the source code can be displayed on the screen, and the cursor moves through the code, showing the instructions as they are being executed.

Finally, you'll be in a better position to determine whether or not Alice is the Pascal for you, when you realise that menus (like those which appear as answers in the context-sensitive help screens described above) are an important part of the face which Alice presents to you as you work. You can actually write programs simply by

selecting from menus, and most Alice commands can be executed from menus.

Alice commands can also be *bound* to keys, so they can be executed simply by typing the appropriate key. Alice comes with default bindings, but you can set up your own if you want.

As you can see, Alice represents a solid, and easy-to-learn version of Pascal, which is designed to make the development of major programs as simple as possible. If you're in the market for Pascal, Alice may just be the partner you're looking for. Alice, the Personal Pascal (\$192 untaxed) is available from Microway, (03) 555 4007.

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Construct DOS directories	N	N	Y
Instant word count	N	N	Y
True microjustification	N	Y	Y
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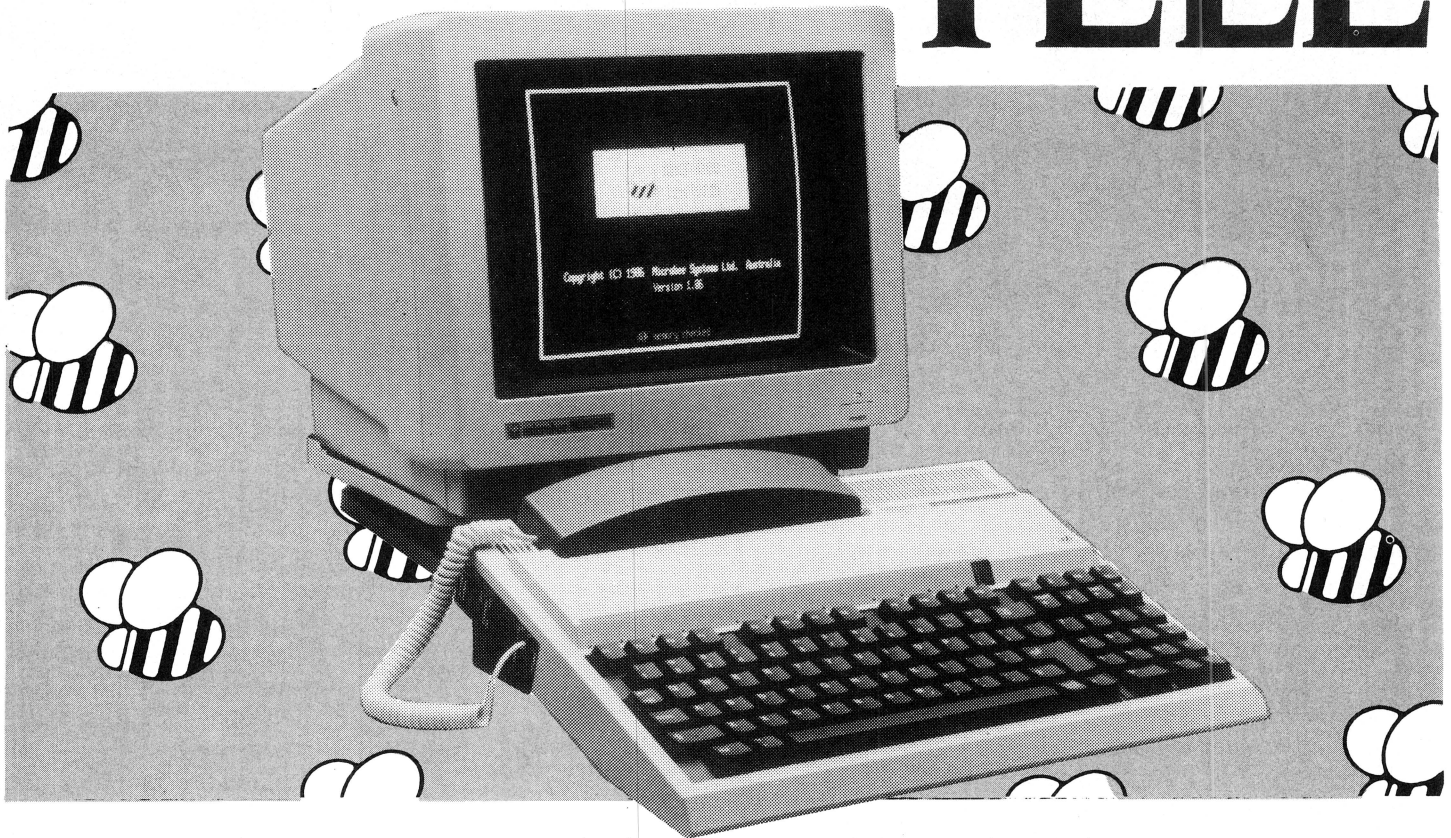
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# THE MICROBEE TELE



*Micro might Bee the name, but Oz's own Applied Technology has packed the Teleterm communications system with so many features for modem users, that Ewart Stronach found he just had to Bee.*

**T**O BEE OR NOT TO BEE, that was the question. Applied Technology have released a dedicated Microbee system for online communication, specifically related to Viatel style applications. Called the Teleterm, it fits into the market alongside Datel, Sony, Philips, Zycor and others who market similar systems. Teleterm differs from most I have been exposed to by virtue of a series of ROM based functions which enhance its usability.

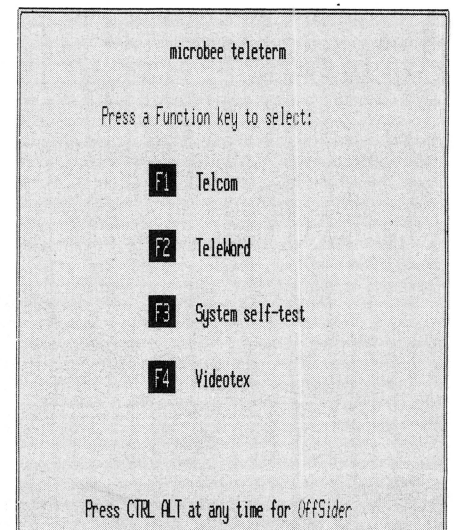
The system I have battled with for about

two years has been slow to respond, devoid of error messages and prone to total collapse when there was any noise on the phone lines. It was capable of saving an entire transmission period to tape for recall later but had no memory access at all. As my needs grew and the system I was accessing became more versatile, it became necessary to seek more functions but not yet necessary to dedicate a PC to the task.

What then to buy, and what features would be nice without breaking the budget? I needed a unit with autodial and it had to be a menu driven system so any of the staff could use it without a three week training period. I had to capture screens for later review and permanent file to tape if required. It had to have a range of display facilities and I needed a system which would talk to a standard dot matrix printer rather than the thermal transfer to aluminiumised paper my old unit boasted. All these features are standard on the Teleterm plus a host of bonus functions.

The Teleterm fires up to a screen which identifies the model and tells you it is checking its 40 Kbyte memory. The first menu page is automatically presented, offering the three user functions plus a system self test routine — see Figure 1. All functions are selected by use of the func-

tion keys which are situated along the top row of the keyboard. The remainder of the keyboard is standard QWERTY, with a number pad to the right and a set of cursor control keys above the number pad. The keyboard is integral with the unit and is wedge-shaped with a gentle slope; it is comfortable to use despite its lack of adjustment. An audible key click is optional.



**Figure 1.** The Teleterm's first menu page — all menu selections are made using the function keys.



# TERM — A VIATEL NECESSITY

The first and most important feature is the Viatel or Videotex option. Pressing F4 from the main menu drops you into a second menu page which introduces "Videotex Terminal Emulator V3.11" by Craig Southern. The top line of the screen becomes a status line with functions listed, relating to the function keys. The offerings are: Exit, File, Set-up, Modem, and Screen. From the right, that is the F5 key, you are first offered the choice of Revealing, Concealing or Transmitting a screen. Key F4 offers Modem control with a dialogue box showing Hang-up, Online, Time online, and Dial.

## D for Dial

You first hit D for Dial and a new box appears, defaulting to Viatel's phone number. Simply type in your alternate phone number and press enter for autodial. The system contains a phone directory which allows the entry of a name instead of a phone number with space for more listings than the normal user would ever want. From there, connection to Viatel is automatic and straight forward. Key F3 offers the Set-up procedure with a choice of a 40 or 80 by 25 screen size. F2 allows access to file handling with a save and load function and a Text Send and Text Creation ability while F1 allows Exit.

Contact with Viatel is easy and the only shortcoming appears to be the need to save each incoming page individually, rather than retain the entire transmission as is available in the Telecom Terminal mode. This necessitates setting up a file name and saving each page with a series of key strokes, incrementing the file number manually each time. My application seldom requires me to file documents, but I do need to refer to them later in the day and it would be easier to retain the whole transmission rather than make a decision as to which page to file each time.

The pages may be saved as screen images or as text files which can be recalled via the word processor. A screen dump of the page (including any graphics) takes quite a while but a text dump through Teleword is very quick. Samples of these can be seen in Figure 2.

Screens may be saved completely for review later and those required may be converted to text files at any time. The filing is handled by a sub-program called Offsider which gives the Teleterm its flexibility. Offsider is accessed with CTRL/ALT and presents a menu of sub-functions.

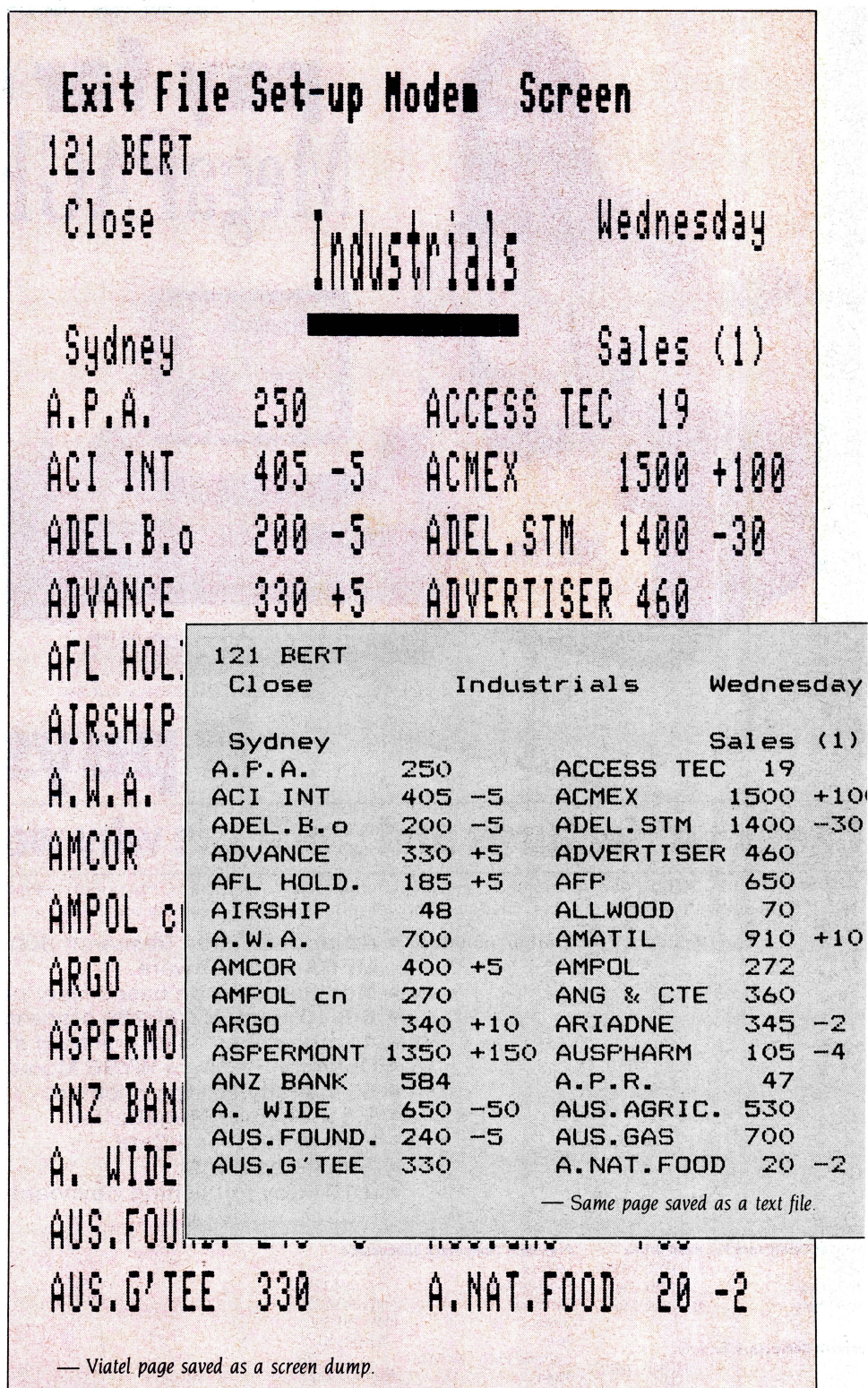
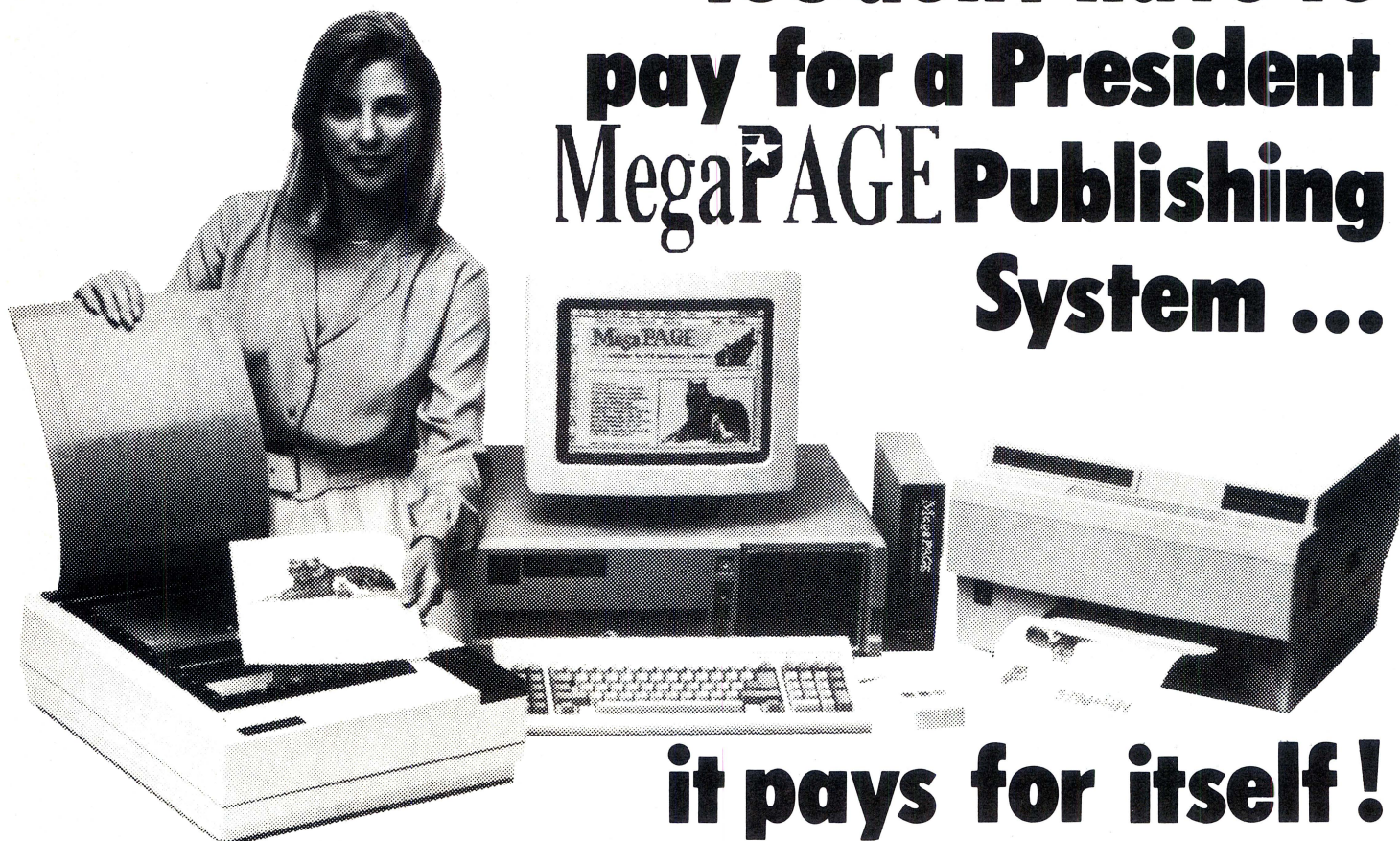


Figure 2. Viatel pages may be saved with either the Create Text option or as screen dumps, including any graphics.





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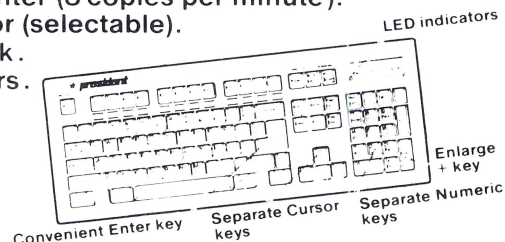


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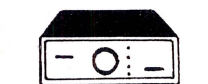


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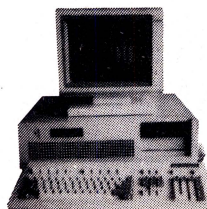
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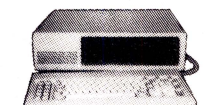
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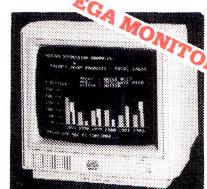


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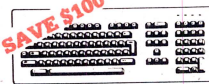
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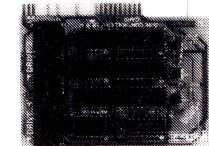
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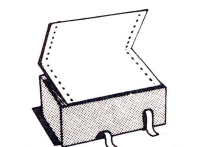
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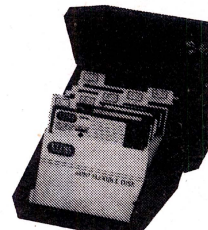
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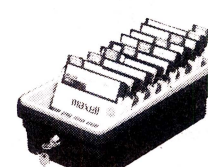
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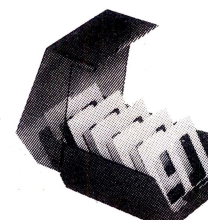
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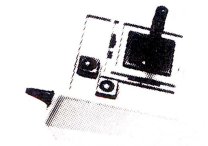
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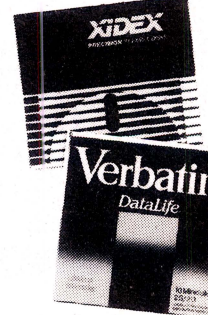
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The first function on the menu is Configure System and gives control of such things as cursor type and flash rate, Printer port selection, Keyclick on/off, Autorepeat rate, Screenprint facility, Margin Bell, Modem interface and Screen positioning — see Figure 3. Each of these selections produces a secondary menu of choices and all parameters set are remembered automatically and become the default settings at the next power up.

## File Handling

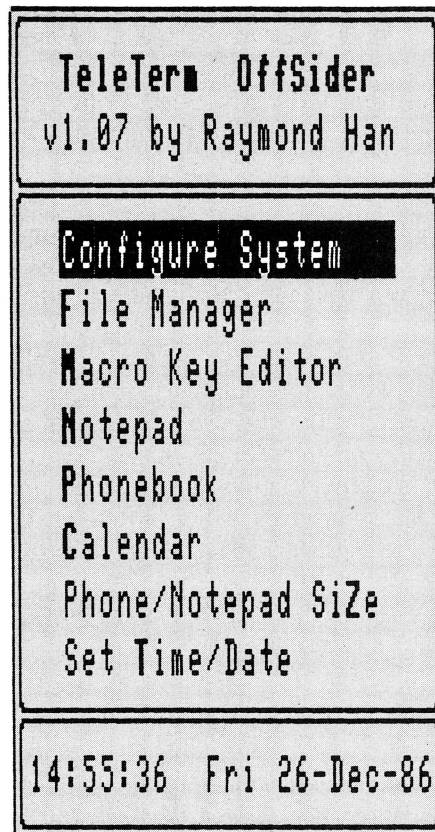
As I mentioned, the file handling is excellent and invocation of Offsider's File Manager displays the options of a File Directory, Delete File, Rename File, Save File and Load File. As all files are held in memory even after power down, there is no need to commit too many files to tape for re-loading later. Unfortunately, as with any computer, power line troubles can result in a system lock-up and a complete re-set destroys in-memory files. Like most Microbee products, Teleterm talks to a normal mono tape recorder and files may be stored with ease if necessary.

The Macro Key Editor allows single key entry of often used words or strings of words — these are accessed with the shift key in conjunction with the appropriate function key. I found it very convenient to record my user ID number, password and entry code into the first three function keys and thereby simplify my entry to Viatel. Once again the pre-set Macros are stored in non-volatile memory and are there at the next power up.

The Notepad Editor drops you into a small screen with four lines of Notepad available. The size of memory allocated to Notepad is variable but the display size remains unchanged. Again a function I find most useful and regularly enter my chores for the next day before switching off for the night. The Phonebook editor screen looks just like the Notepad but entry of a name followed by the appropriate phone number means that whilst in the terminal mode you can enter any listed name and the modem will find and dial the number automatically.

The Calendar displays a current Month's page, complete with time, day and date. The arrow keys allow you to step through the months or years and display a calendar for any desired period. I found myself defaulting to this page while the unit is on but not in use.

Now for the built-in word processor —



Teleword. (I feel almost paternal about this feature of the Teleterm. Some years ago a family friend dropped in with his youngest son. In an endeavour to amuse this lad, I sat him in front of an old System 80 and showed him how to load Basic. About four hours later we had to crowbar him away from the keyboard. He went on to much bigger and brighter things and I get a warm glow every time I switch over to Teleword to be greeted by 'TELEWORD Word Processor, Ver 1.03, Written by Chris Nicol'.)

Asides aside, the inclusion of Teleword really makes this terminal stand out above the crowd. The ability to collect text and then, without fuss, manipulate and print it in a variety of styles, is perhaps the strongest point of the entire system. Teleword is a minimum style of word processor, designed for limited use within the confines of a 40 Kbyte system. All files are retained in memory even after power down and data capture is semiautomatic.

The front page shows a top status line, a ruler and a bottom status line. The top line, like all status lines on Teleterm refers to function key operation and F1 offers a quit function, a load, save and print function. F2 offers a wide range of editing op-

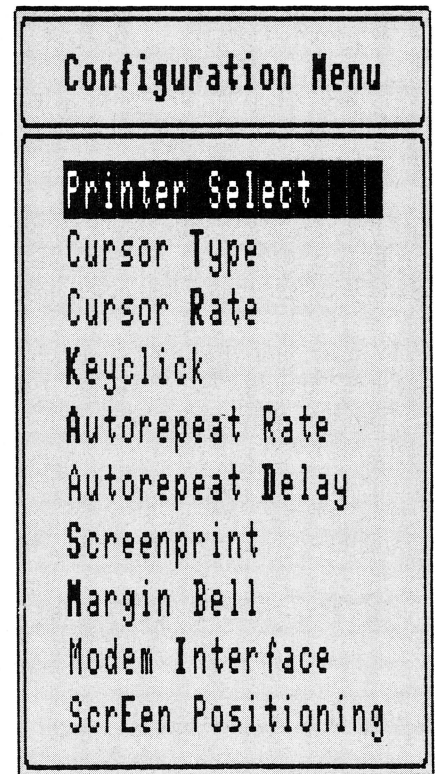


Figure 3. Teleterm's flexibility comes from the in-built Offsider software. Shown above are the main menu and the options offered upon selecting Configure System.

tions including a Block mode which allows cutting and pasting, restyling, case inversion, word search and/or replace. F3, headed Move, allows instant cursor movement to top or bottom of file or forward and backward a page at a time.

Document formatting is done with F5 and allows normal right or left justification, centering and tab setting. The parameters may be changed part way through a document and the entire text re-formatted automatically. Key F5 allows a choice of bold, underlined or italic print styles. When any of these are chosen, Teleterm displays your choice on screen which is a great help in document design or formatting. F6 displays file status and print options which include number of copies, initial page number, title page, graphic dump, draft copy and pause between pages.

The layout option behind F7 allows forced page breaks, full selection of page sizes and margins. F8 is a cute little number which draws a picture of your current page and screen to allow a preview of the layout.



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File Edit Move Format

Style Options Layout Zoom

TeleWord Word Processor  
Version 1.03  
Written by C.Nicol  
(c) 1986 Microbee Systems Ltd.  
Press any key to continue

= File UNTITLED.DOC ===== Page = Line = Column =

**Figure 4.** Teleword's opening page: The top status line gives the function key operation while in Teleword, starting with F1 on the left; this convention applies to all of the Teleterm programs.

## All in all..

Teleword is easy to use and would make the Teleterm stand alone in many small offices which would otherwise need far more expensive equipment. The obvious shortcoming of the entire system is its lack of high speed data storage in the form of a disk drive. I believe such a function is in design and if Applied Tech follow their very successful formula of upward compatibility this would be the first thing I would add to the system.

The only other piece of criticism I would add is that Offsider lacks a calculator. It would seem to be a moderately easy addition to the suite and one which would find a ready welcome in most offices.

I encountered few problems with the system despite the fact that the documentation I got was pre-publication notes rather than full documents and on the few occasions I got a "lock-up", I found that a complete power down restored the system, usually without loss of files. To this end an on/off switch on the unit would save a lot of scrambling round under my

desk deciding which lead on the Christmas tree under there led to the Teleterm.

I don't see the Teleterm as the type of

machine an average home user would buy so it's unlikely that it would get taken apart or added to in any unusual manner, but let's take a look inside...

## What Makes It Tick

It's based on a Z80A running at 3.375 MHz with 32 Kbytes of static, CMOS battery-backed RAM plus 8 Kbytes not battery-backed. There are 64 Kbytes of ROM and a high resolution Programmable Character Generator to drive the 640 x 275 colour display. Thirty Kilobytes of the memory is available as a RAM disk in normal operation. (Ticks just like a Microbee so far).

The normal RS232 port is there plus a Centronics port. The built-in modem works at 300/300 and 1200/75 and has autodial and autoanswer. It comes complete with its own telephone handset which can be used for normal voice type communications. The software is all built-in with no provision for altering or adding anything you may need other than by alteration of the ROMs — not a job for the amateur.

The communication package allows a full range of standard modem options and includes terminal emulation for the VT100, VT52 and TVi912. A full range of baud rates from 50 to 19200 plus 1200/75 and 75/1200 are available. Full control of the serial port is menu driven. The system obviously works best when coupled with a colour monitor and the test unit came with a Thomson/ESE RGB monitor. This monitor adds \$499 to the price of the Teleterm but I think it's money well-spent. □

## Product Details

<b>Product:</b>	Microbee Teleterm
<b>Manufacturer:</b>	Applied Technology Koala Crescent, West Gosford 2250 NSW (043) 24 2711
<b>Price:</b>	Teleterm \$990 Colour Monitor \$499

## Ratings

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**EASE OF USE**

**DESIGN**

**RELIABILITY**

**VALUE FOR MONEY**



# Part 15

*In this exciting episode of the sequel to the best-selling 'B for Smarties', Les Cell looks at a private realisable fantasy for PC users.*

**W**HAT WITH THE the advent of networks (some of which seem to work) all over the PC community, we now have the prospect of unauthorised users reading YOUR files, which you thoughtlessly left on the file server. Personal computer networks have to be viewed in very much the same way as minicomputer and mainframe installations as far as security is concerned — the problem is, however, that many networks provide minimal security, if any.

## Realisable Fantasy Number 2 — Encryption

So I thought for this month's RF (Realisable Fantasy), we'd make people's files a little more secure through the use of a simple data encryption program.

There are many techniques for data encryption, some well known (such as the NSA 56-bit public-key encryption technique) and others not so well known. However, in a series on C programming, use of an over-complex technique would obscure the points of programming which we want to discuss, so I've settled for a much simpler algorithm. In any case, on the average PC network, most users can barely use the DOS copy command, let alone perform cryptanalysis, so a simple technique is generally adequate.

I've opted for almost the simplest of all, using the exclusive-OR operator which is almost unique to C. The truth-table for XOR is as follows:

A	B	A XOR B
0	0	0
0	1	1
1	0	1
1	1	0

In other words, the result is 1 if (and only if) either A is 1 or B is 1, *but not both*. Another way of looking at this is as a comparator: the result is 0 if A and B are the same, and 1 if they are different. Or alternatively (and this is the most useful way of

looking at it for our present purposes), the XOR operator is a controlled inverter: the output is A as long as B is 0, but when the B input goes to 1, the output is NOT A.

Now, the exclusive-OR operator is one of C's bitwise operators, which means that it operates on corresponding bits of two integer-typed values (by that I mean chars, ints or longs, signed or unsigned). For any bit in a value, if it is XORED against 1 it is inverted; to bring it back to its original value, XOR it with 1 again.

It follows that if a variable is XORED against some other value, XORING it again with the same value will restore the variable to its original value. In other words, the XOR function is commutative.

The methodology for text string encryption is given in Figure 1.

We now have the basis of our encryption program. The first job is to write a general-purpose encryption routine which is passed as a pointer to the plaintext to

be encrypted, a pointer to the key, and the length of the buffer to be encrypted. The C code is given in Listing 1.

The two parts of `(i < how—long && key[j])` test for the end of the encryption buffer and the end of the key respectively. `Key[j]` is normally a character, but when we reach the end of the key string, we read the EOS character, which is a null. This resets `j` back to zero and continues the encryption.

## Design Considerations

Let's now look at the overall design of the encryption program. Unlike many other programs which can read an input file and output to another file (for safety — if the program fails the input file is unchanged), this program should encrypt a file *in situ*. Otherwise, a user is likely to produce an encrypted version of the file but forget to erase the plaintext original.

This means that the program must use a random access technique to read a block

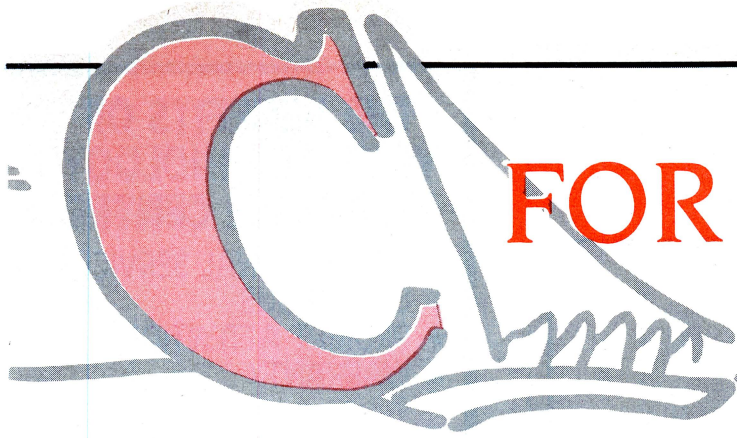
*To encrypt a text string, the procedure is to XOR each character in turn against the corresponding character from a keyword. The keyword is repeated as necessary —*

```
This is the plaintext to be encrypted.  <- Input
keywordkeywordkeywordkeywordkeywordkey  <- Key
|||||
vvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvv
Output text string looks like garbage.  <- Output
```

*To recover the original text, the encrypted string is XORED with the original key —*

```
Output text string looks like garbage.  <- Input
keywordkeywordkeywordkeywordkeywordkey  <- Key
|||||
vvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvvv
This is the plaintext to be encrypted.  <- Output
```

Figure 1. Text string encryption.



# FOR SMARTIES

of the file at a time. In the case of MS-DOS, the disk is normally formatted in 512-byte sectors and DOS's internal buffers are also 512-byte. For optimal performance, therefore, we should read and write 512 bytes at a time. There is no point in trying to read a larger buffer, because the operating system will only have to read multiple sectors anyway, with consequent rotational latency and some head movement (this may be offset by cache buffering). For other operating systems, other buffer sizes may be appropriate.

The best way to perform this task is with the `fread()` function shown in Figure 2. FIGURE 2 AFTER

`fread()` returns the number of elements read, which should normally be 512, until the last sector, when it will read less than 512 bytes (unless the file size is an exact multiple of 512). We need to take account of this in the code.

In addition, each `fread()` will advance the file read/write pointer, so we must have an intervening `fseek()` call in order to rewrite the sector in the right place.

Next, we must provide a means for the user to input the encryption key without it being revealed on the screen. On most non-UNIX C compilers, the `getchar()` and `getc()` function calls echo input characters to the screen, and so are unsuitable for use.

The two techniques we can use to get around this problem are given in Figure 3.

Another problem is checking that the key supplied by the user is long enough — a key of less than five characters in length would probably be too easy to crack. The solution is given in Figure 4.

Finally, we might provide an option which allows the key to be specified on the command line. While this is not terribly secure, it does allow the use of the program from within batch files. Of course anyone looking in the batch file can see the key, but then, who would expect it?

The complete program, together with some brief documentation, is given in Listing 2. □

## Listing 1.

```
encrypt(whence, key, how_long)
char *whence;
char *key;
unsigned int how_long;
{
    unsigned int i=0, j=0;

    while(i < how_long) {
        while (i<how_long && key[j])
            whence[i++] ^= key[j++];
        j = 0;
    }
}
```

```
#include "stdio.h"
int fread(whence, elsize, nelelem, stream)
char *whence;          /* Where to put the data */
unsigned elsize;        /* Size of an element in bytes */
unsigned nelelem;       /* number of elements to read */
FILE *stream;          /* Where to get them */
```

Figure 2. The `fread()` function.

We can open the console (CON) as a binary file: on the Computer Innovations Optimising C86 compiler, which I used to develop this example. This has the effect of suppressing the echoing of input. Here's the code —

```
console = fopen("CON", "rb");
p = keybuf;
while ((c = fgetc(console)) != '\r') *p++ = c;
*p = '\0';
```

However, the CP/M-86 version of the compiler objected to the above, so I replaced it with calls to the compiler's `bdos()` function, which makes direct calls on the operating system. The CP/M-86 function number 6 performs direct console input/output with no echo on input —

```
p = keybuf;
while ((c = bdos(6, 0xfd)) != '\r') *p++ = c;
*p = '\0';
```

Figure 3. Two techniques to input the encryption key without its being echoed to the screen.

```
if(strlen(p) < 5) {
    printf("Please use a key of five characters or longer");
    exit(1);
}
```

Figure 4. How to check that the key is long enough.



## C FOR SMARTIES

Listing 2. A simple data encryption program.

```

/*
    crypt.c - File in-situ encryptor / decryptor
    Written by LB, 12/15/85
    Extremely simple XOR algorithm
    Usage: crypt file key
*/

#include "stdio.h"

#define BUFSIZ 512 /* Size of I/O buffer */
#define MAXKEY 80 /* Maximum key length */
#define SIZE 1 /* Size of elements to read or write, in bytes */

#define DOS /* This version for DOS */

main(argc,argv)
int argc;
char **argv;
{
    FILE *thefile,*console;
    char keybuf[MAXKEY], *p,c;
    unsigned int num_read,num_written; /* For fread() */
    unsigned char buffer[BUFSIZ];
    extern long rewind(); /* Must declare these */
    extern long ftell(); /* functions, as they */
    extern long fseek(); /* return longs */

    if (argc != 3) { /* Was command usage correct? */
        if(argc == 2) { /* No key on command line */
            printf("-crypting file %s",argv[1]);
            printf("\nPlease enter key:");
        }

#ifdef DOS
        console = fopen("CON","rb");
        p = keybuf;
        while ((c = fgetc(console)) != '\r') *p++ = c;
        *p = '\0';
#else
        p = keybuf;
        while ((c = bdos(6,0xfd)) != '\r') *p++ = c;
        *p = '\0';
#endif

        putchar('\n');
        p = keybuf;
    }
    else {
        printf("\ncrypt encryption utility. (C)1986 Les Bell.");
        printf("\nUsage: crypt file key");
        exit(1);
    }

    else p = argv[2]; /* Key was given on command line */

    /* Check for adequate key length */

    if(strlen(p) < 5) {
        printf("Please use a key of five characters or longer");
        exit(1);
    }

    /* Open the file for binary mode update */
    if((thefile = fopen(argv[1],"r+b")) == 0) {
        printf("Unable to open file %s",argv[1]);
        exit(1);
    }

    rewind(thefile);
    while((num_read = fread(buffer,SIZE,BUFSIZ,thefile)) == BUFSIZ) {
        putchar('.'); /* Output a dot for each sector */
        encrypt(buffer,p,BUFSIZ);
        fseek(thefile,(long)-BUFSIZ,1);
    }
}

```

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## MegaFax

MegaFax enables users to **megaPAGE** products to both send a graphics file to remote facimile machines, and to receive fax transmissions on their PC's for editing or for printing on the system's laser printer. MegaFax serves as an image transfer utility between **megaPAGE** 300 dpi graphic images and Group III fax file 200 dpi images. Combined with AVR's Megascan Image/Text Editing software and high quality HP LaserJet compatible fonts, facsimile images of unprecedented clarity and content can be quickly composed and sent worldwide.

AVR uses Gammalink's fax modem board and software as the PC to phone line interface. By using the GammaFax high-speed PC-to-PC file transfer capability, **megaPAGE** users have the option of avoiding the 200 dpi resolution of Group III fax machines and transfer 300 dpi images directly between similarly equipped PC workstations at rates up to 9600 bits per second.



## MegaFax Features

- \*PC to Group III FAX transmission
- \*FAX-to-PC reception
- \*PC-to-PC communication at 9600 baud
- \*Automatic 300 dpi <-> 200 dpi scaling
- \*Compatible with MagaScan and AVR-300 Image Scanner
- \*Mouse driven user interface



# C FOR SMARTIES

```
        if((num_written = fwrite(buffer,SIZE,BUFSIZ,thefile)) != BUFSIZ) {
            printf("\nUnable to write back to file.");
            printf("\nCheck for corruption immediately.");
            exit(1);
        }
    }

    /* Last read was probably to eof */
    if(num_read > 0) {
        putchar('.');
        encrypt(buffer,p,num_read);
        fseek(thefile,-((long)num_read),1);
        if((num_written = fwrite(buffer,SIZE,num_read,thefile)) != num_read) {
            printf("\nUnable to write back to file.");
            printf("\nCheck for corruption immediately.");
            exit(1);
        }
    }
}

encrypt(where,key,how_long)
char *where;
char *key;
unsigned int how_long;
{
    unsigned int i=0,j=0;

    while(i < how_long) {
        while (i<how_long && key[j])
            where[i++] ^= key[j++];
        j = 0;
    }
}
```

Command: crypt

File Name: crypt.exe

Syntax: crypt filename [key]

Purpose: Encrypts and decrypts files 'in situ' to provide a measure of security. Warning: encrypting a file in situ makes the system vulnerable to corruption caused by equipment or power failure during the encryption process. However, it is possible to recover corrupted files using the Norton Utilities or similar programs.

If a key is not specified on the command line, the program will prompt for it. In this mode, the input key will NOT be echoed to the screen. This mode also allows the entry of control characters in the key.

Keys shorter than five characters in length will not be accepted - they are too easy to crack.

The encryption method used by the program is very simple, and is based upon a simple cyclical XOR technique. Any good cryptanalyst should be able to break it in a few hours.

Flags: None

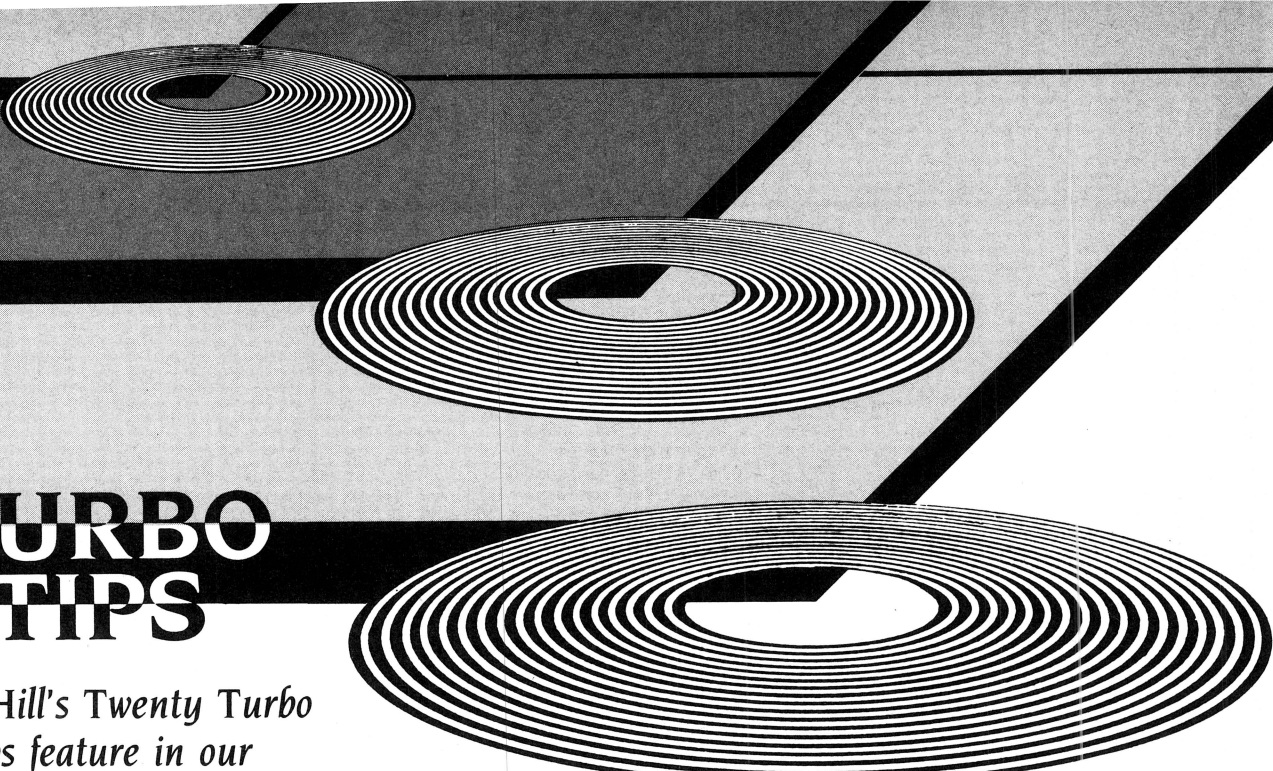
Examples: C:\>crypt salary.dat nonsenseword

Notes: Keys should be as long as possible consistent with the memory of the user, and should avoid repeated characters. Inserting one or more control characters into the key can increase the number of possible keys.

## Gaps in Parts?

MISSED PARTS of any of our YC Tutorials? Well, you've got a second chance — We'll forward photocopies of any Parts of any Tutorial we've published for \$0.50 per Part plus \$4.00 post and handling within Australia (overseas postage additional). Please identify the Tutorial by its complete name and Part number (if applicable). All but the latest of our Tutorials are listed in YC's 5-Year Index, published with our July 1986 issue: refer to the Services page on how to obtain Back Issues. □





# TURBO TIPS

*Peter Hill's Twenty Turbo Tips feature in our December and February issues drew so many demands for more, that we asked him to carry on tipping every month. Reader's who have picked up their own tips to make life easy with Turbo Pascal are invited to send them in — we'll pass them to Peter for comment (and publication). Now: let's Curse! and Fudge...*

NOW THAT BORLAND, have released Turbo Pascal for the Apple MacIntosh (can the Amiga and Atari ST be far behind?), this programming system is available for three very pervasive computer systems. The IBM PC family is supported in both MS-DOS and CP/M- 86 flavours, a very similar CP/M system is available for 8-bit users and a more-fully featured version supporting the Mac world is now making its impact.

This puts Turbo Pascal in the similar position to Microsoft Basic and some C compilers; it is becoming a lingua franca of microcomputing. On this basis, we

thought the time had come to host a regular column to serve as a forum for Turbo Pascal users.

The content (and no doubt the quality) will vary from month to month; as well as tips, there will be some product information. Some content will be machine specific, whilst other parts will be more general. Importantly, I look forward to *your* participation and welcome both suggestions and queries.

## Fast Fudge

To wet your appetite, Fudge returns an integer result to the multiplication of an integer number by a fractional number. Usually this would require resort to floating point operations or at least conversion to and from floating point, but you can work around that *providing* that you are confi-

dent that there will not be overflow in the first step of multiplication of the numerator of the fraction by the first integer. Unfortunately, if you aren't confident of that, Turbo Pascal won't help; there is no error checking on Integer overflow.

Amongst other things, the routine points up what could be achieved in integer arithmetic if only a *long* integer type were available in Pascal. Why bother? Timed on an IBM PC clone, the Fudge routine took 11 seconds for the 30,000 iterations, whilst the floating point calculations took 99 seconds. The answers given were —

Fudge 2733

Floating 2.7333333333E+03.

In many circumstances, the former is sufficiently close for the task.

```
PROGRAM Fudge;
```

```
VAR  
  i,f :INTEGER;  
  r :REAL;
```

```
FUNCTION Fudge(A,B,C :INTEGER):INTEGER;
```

```
VAR  
  Temp :INTEGER;  
  UFlow :INTEGER;  
  SignFlag :INTEGER;  
BEGIN  
  {determine the sign of the  
  result and store}  
  SignFlag:=A Xor B Xor C;  
  {if divide by zero return  
  MaxInt; it's not infinity  
  but it's certainly big}  
  IF C=0 THEN Temp:=MaxInt ELSE  
  BEGIN  
    {we have to do the multiplication  
    first or lose all accuracy}  
    Temp:=Abs(A)*Abs(B);  
    {if Temp is <0 then it's really a
```

```

larger than MaxInt)
IF Temp<0 THEN
BEGIN
  {let's pray it's less than
  twice MaxInt and fudge again!}
  Uflow:=MaxInt-Abs(Temp);
  {Treat the underflow and
  the large part
  (MaxInt) separately}
  Temp:=MaxInt;
  Temp:=Temp+(Abs(C) DIV 2);
  Temp:=Temp DIV Abs(C);
  Uflow:=Uflow+(Abs(C) DIV 2);
  Uflow:=Uflow DIV Abs(C);
  {put it back together}
  Temp:=Temp+Uflow;
END
ELSE
BEGIN
  {ensure that the result is
  rounded up}
  Temp:=Temp+(Abs(C) DIV 2);
  {and do the (integer) division}
  Temp:=Temp DIV Abs(C);
END;
END;
{correct the sign of the result}
IF SignFlag<0 THEN Fudge:=-Temp ELSE Fudge:=Temp;
END;

BEGIN {a demonstration}
  Write(Char(7));
  FOR I:=1 TO 3000 DO f:=Fudge(12300,2,9);
  WriteLn(f);
  Write(Char(7));
  FOR I:=1 TO 3000 DO r:=12300*(2/9);
  WriteLn(r);
  Write(Char(7));
END.

```

## Curses!

Here we are going to look at manipulating the cursor on the IBM PC (or near offer). The routines use the ROM-BIOS services, so they will work on clones and on some other MS-DOS machines.

Turbo Pascal provides the Standard Procedure GotoXY(X,Y) to place the cursor on the screen in text mode, unlike many other Pascal and C compilers, so what more could you ask? Unfortunately, this routine is a little bit *too* well behaved; if we try to make the cursor disappear by moving it to co-ordinates off the screen, Turbo Pascal compensates for our error. Since there are many times we don't want a cursor at all, we have to resort to using a ROM-BIOS routine.

The second part of the example code shows how to change the cursor size; this is very handy to distinguish, say, insert mode in a word processor. Even more handy is to have a compiled version on disk with standard settings for some of the programmes (Reflex is an example) which don't set the cursor back to standard as they exit! Without further ado....

```

PROGRAM Curses;
{
PlaceXY places the cursor on (or off) the screen;
Size_Curse sets the cursor to a specified number of lines;
Portability :Limited to IBM and Clones, some MS-DOS machines;
}
TYPE
  RegPack=RECORD
    ax,bx,cx,dx,bp,si,ds,es,flags :INTEGER;
  END;
VAR
  RecPack :RegPack;
  IK :CHAR;

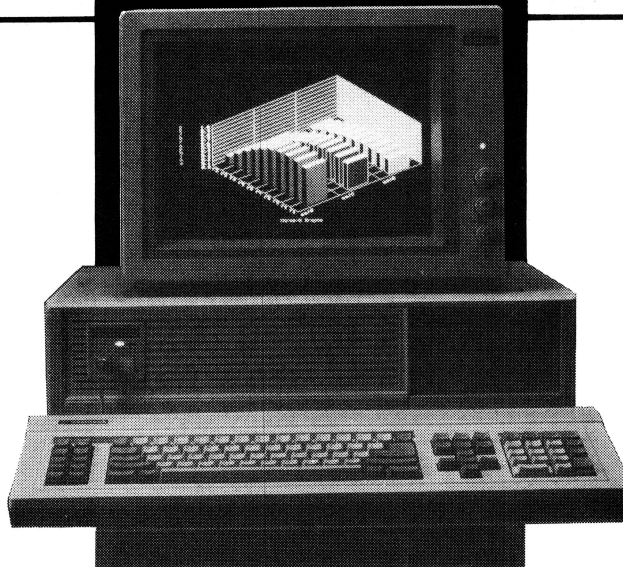
PROCEDURE PlaceXY(X,Y :BYTE);
VAR
  dh,dl,ah,al :BYTE;
BEGIN
  {select service number two}
  ah:=2;
  al:=0;
  WITH RecPack DO
  BEGIN
    {load dh with Y and dl with X, but correct
    from the DOS 0,0 top-left co-ordinates to
    the Turbo 1,1 top-left co-ordinates.}
    dh:=y-1;
    dl:=x-1;
    dx:=dh shl 8 + dl;
    {specify the page to which this applies}
    bx:=0;
    ax:=ah shl 8 + al;
    {issue interrupt number 10 hex}
    Intr ($10,recpack);
  END;
END;

PROCEDURE Size_Curse(StartLine,StopLine
:BYTE);
{ for the CGA, the bottom line is 7,
whilst for Monochrome it is 13}
VAR
  ch,cl,ah,al :BYTE;
BEGIN
  {select service number 1}
  ah:=1;
  al:=0;
  WITH RecPack DO
  BEGIN
    ch:=StartLine;
    cl:=StopLine;
    cx:=ch shl 8 + cl;
    ax:=ah shl 8 + al;
    {issue interrupt 10 e}
    Intr ($10,recpack);
  END;
END;

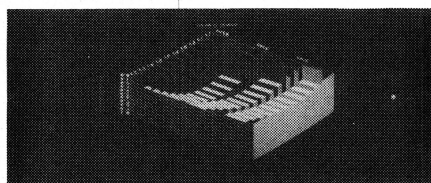
BEGIN
  ClnScr;
  {send cursor off-screen}
  PlaceXY(60,26);
  Read(Kbd,IK);
  {get it back}
  PlaceXY(5,5);
  {set cursor size}
  Size_Curse(1,6);
  Read(Kbd,IK);
  {restore to normal}
  Size_Curse(6,7);
  {for CGA; for MDA Size_Curse(12,13)}
  {that's all folks}
END.

```





# NOT JUST ANOTHER SMITH



**I**T WOULD BE GROSSLY UNFAIR to suggest that Mr Smith founded his empire on sales of copies of other peoples hardware. Many of the computers sold by DSE, bear no resemblance to any other available in Australia. Some, like the original Sorcerer, were fine machines which found a ready market, others, like the Wizard, failed through lack of support and software. It would however, be totally fair to suggest that DSE's strength lies in seeking out machines which do more than the competition at better prices.

My first computer was a Dick Smith System 80, a workalike to the then most popular Tandy TRS 80. It cost significantly less than the Tandy, looked much more like a computer and was far more accessible for the 101 modifications that were eventually carried out on it. The Cat ate Apples and now the Multitech Accel 900 looks like it could eat anything that's Big and Blue.

The Multitech comes all the way from Multitech Industrial Corporation factory in the Hsinchu Science Based Industrial Park in sunny downtown Hsinchu, Taiwan. It comes via your local Dick Smith store, and more importantly it comes complete with Technician to install it. The test machine was delivered to my home, completely set up and test run most efficiently by a technician well versed in such matters and able to answer all the questions expected from a first time user. The software provided with the unit was already installed on the hard disk and the set-up took only

*Dick Smith Electronics' strength has always been in seeking out machines which do more than the competition at a better price. DSE's Cat ate up Apples, Ewart Stronach found, and Big Blue could be in for the same fate with the Multitech 900.*

about twenty minutes, most of which was technical chat anyway.

The unit looks just like the AT it emulates. It's cream in colour, with a single floppy disk drive mounted on the right hand front panel and a key operated system lock on the left along with a reset button and speed and disk access LEDs. The system lock is not a power switch and if you power up the unit from the switch mounted on the back, with the system lock off, the unit boots, performs normal memory tests and then reports that the key is in the locked position. You must then turn on the key and press F1 to proceed. If the key is then turned off again, the reset button is de-activated.

## Soft Touch

The monitor supplied was the Multitech MDM-12, a high resolution green screen on its own tilt/swivel base. The keyboard comes complete with its own handbook — it's a large board, longer than the main unit and very well thought out. On the left, a normal row of function keys and a standard QWERTY key lay-out, but on the right, a full number pad plus a secondary set of cursor control keys which may be operated without having to use the Numlock function. The touch is quite soft and lacks a positive clicking action which some prefer. The cable is just too short. It plugs into the middle of the back of the computer and does not allow you to get far enough away from home. It would have suited my application to leave the computer under my desk with only the keyboard and monitor on the desk but this was prohibited by both the keyboard and the video cable length.

So much for appearance. I've seen plenty that look this good but how does it perform? In a word: *fast*. From a cold start, by the time the screen is alight the Multitech has checked its 512 Kbytes of memory and is patiently waiting for your next instruction. My first instruction was to run SYSINFO, a program from the Norton range designed to report on the configuration of the computer and relate its performance to an IBM/PC. This reported a relative speed of 10.1 times the performance of the IBM.

There is a DOS utility supplied which ▷



# president

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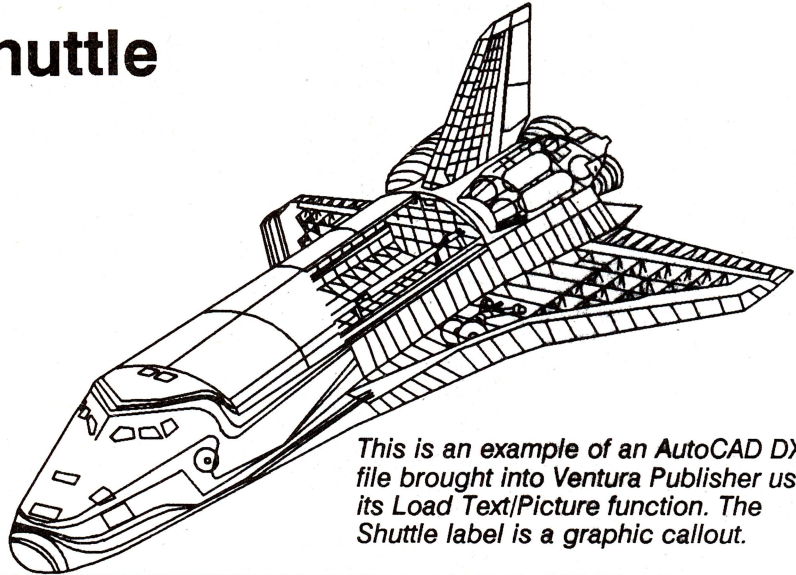
## MegaGEM

MegaGEM is a software package that links GEM applications and Ventura Publisher to AVR's powerful image/text editing program: MegaScan.

MegaGEM consists of three individual programs: a GEM accessory for scanner control and image format translation; a printer driver for 300 dpi output from GEM applications; and a second printer driver for 300 dpi output from Ventura Publisher.

The MegaGEM software allows the AVR-300 image scanner to scan images into the 1.3 megabyte pixel buffer (MegaBuffer) from within any GEM application or Ventura Publisher. MegaGEM can also transfer pixel images between the MegaBuffer and GEM image files.

### Shuttle



*This is an example of an AutoCAD DXF file brought into Ventura Publisher using its Load Text/Picture function. The Shuttle label is a graphic callout.*

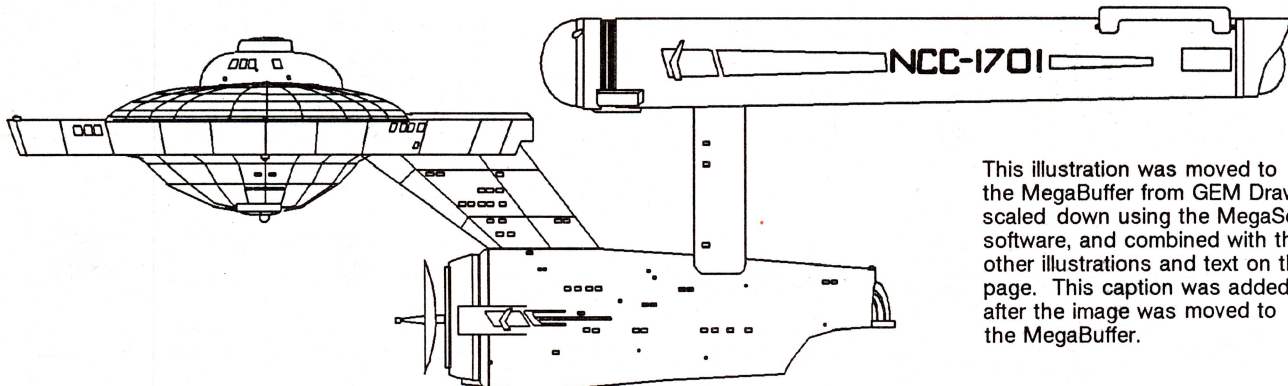
This illustration with text was moved to the MegaBuffer from Ventura Publisher to create this data sheet.

## MegaGEM Features

- \* Operates the AVR-300 scanner from within GEM applications or Ventura Publisher.
- \* Prints from GEM applications and Ventura Publisher at 300 dots per inch on the AVR Laser Printer.
- \* Reads GEM images into the MegaBuffer where they can be edited and incorporated into larger documents.
- \* Transfers GEM application and Ventura Publisher formatted output into the MegaBuffer where they can be edited with the MegaScan software.
- \* Converts scanned or other images in the MegaBuffer into GEM image format.



This image was scanned using MegaGEM from within GEM Paint.



This illustration was moved to the MegaBuffer from GEM Draw, scaled down using the MegaScan software, and combined with the other illustrations and text on this page. This caption was added after the image was moved to the MegaBuffer.



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Samna Plus	895	DAC Easy Tutorial	49		
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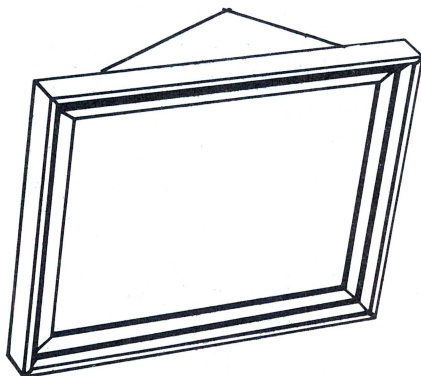
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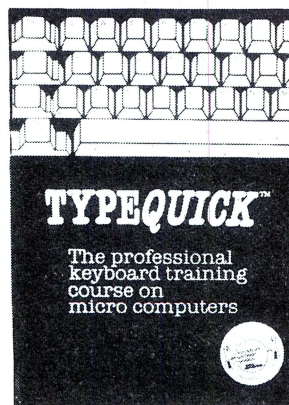
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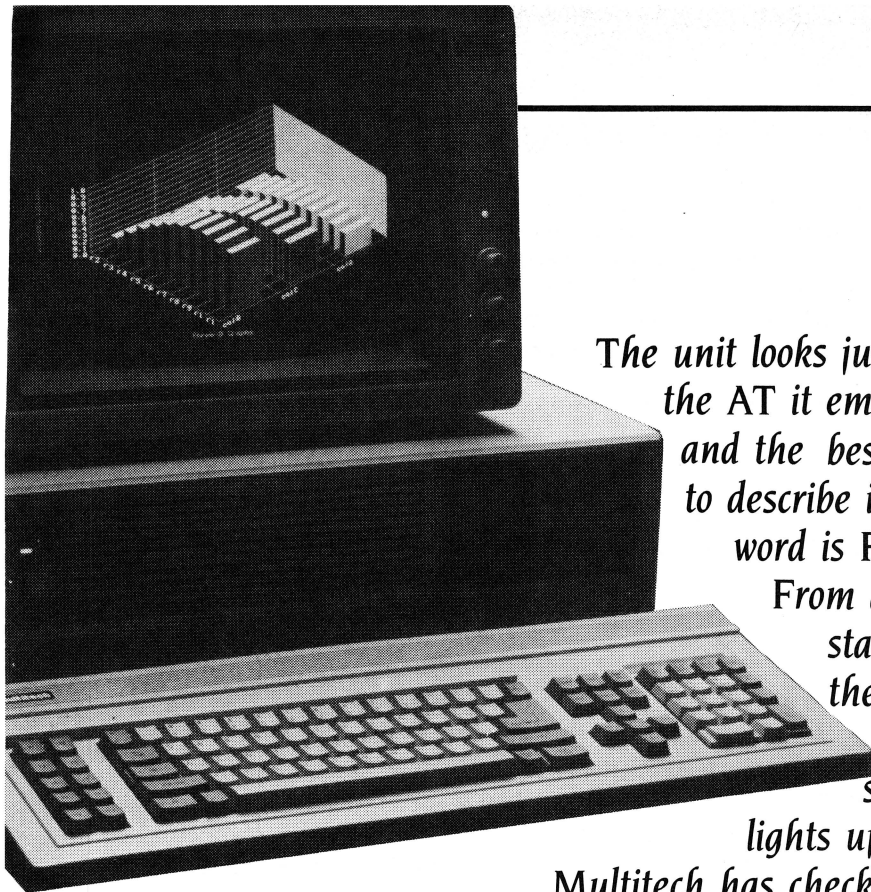
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and is patiently waiting  
for your next instruction.*

cuts down the processor speed to 6 Mhz for compatibility with certain proprietary software which gets a nosebleed when asked to run this fast. I could have spent the rest of the night running benchmark tests on this machine but in Matt Whelan's insatiable search for power and speed, it's all been done before. (See Matt's articles in the November '86 and January '87 issues.) There are faster AT clones in the market but for all practical purposes, the Multitech is quite fast enough, particularly when related to price.

### Supercharged!

What secret supercharger lurks inside the beast? Getting inside is easy, five screws on the back and off lifts the top without having to prop up the unit and slide the guts out the back. The layout is pretty standard. With the disk control, mouse board and video board in place there are still five slots available. The power supply is a whopping 200 watt unit with spare output terminals for two more floppies and another hard drive. I was surprised to see an old style full height hard disk in there. There is enough space for an additional three half height floppies or another full size hard disk.

It is all driven by the Intel 80286 processor running at 10 Mhz or, as I mentioned, switchable down to 6 Mhz. There is room on the motherboard for a further memory expansion to one Mbyte plus the addition of a 80287 maths co-processor. The boards are solidly built and firmly mounted. The chassis is all metal which provides rigidity with the trade-off being

20 Mbyte hard disk, 512 Kbytes of RAM, dual speed CPU, 14 inch monitor on swivel base, serial and parallel ports, MGA mono graphics card, DOS 3.1 and Open Access 2 software, six months on-site service and free installation. When you consider that the Open Access software is widely advertised at \$1260 alone and a free on-site service offer for six months is included, the package takes on quite a rosy glow.

There are certainly cheaper clones on the market but by the time you calculate the software cost and compare the availability of service, Multitech looks good. This is not the place for a review of Open Access. It is a software package of the type that I call "Hidden Operating System" software. After loading, the user drives the various modules with single key strokes from a series of menus rather than by typing in commands from the keyboard. It contains all the necessary basic modules needed to build up your own small business applications. There is a word processor, spreadsheet, desk organiser and appointment sheet, calculator and database. The software is not automatically NEEDED by every user and I feel that a selection of software should be offered rather than a "Here is Open Access, we hope you need it" attitude should be adopted, or the price without the software package advertised. □

the weight of the unit. The office girl is not going to move it about with impunity.

What do you get for your money? The Multitech 900 is currently advertised at \$6995. This includes a 1.2 Mbyte floppy, a

### Product Details

<b>Product:</b>	Multitech Accel 900
<b>Manufacturer:</b>	Multitech Corporation Hsinchu, Taiwan
<b>Review copy from:</b>	Dick Smith Electronics 396 Lane Cove Rd, North Ryde 2113 NSW (02) 888 3200
<b>Price:</b>	\$6995

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## Amstrad

### FIND

ARE YOU ONE OF those inquisitive people who has to know everything about the inner workings of your computer. Then this program is just for you. Firstly, the program looks at the memory and remembers all the locations. It then asks for a Basic instruction such as PRINT "NINJA" or any other command you may choose. After comparing the previous memory locations to the new memory locations, it then lists all the changes.

This is a big asset to the programmer who uses machine language routines in his Basic programs. For example, if you're writing a high-speed graphics program in machine language, you can find the locations of the variables wanted so you can process information.

Or, the machine code program could find the best move in a checkers board.

Miroslav Kostecki,  
and Paul Vermeer.  
Elizabeth Park, SA.

```
10 REM ### FIND ###
20 'Miroslav Kostecki Dec '86
30 '
40 DEFINT a-z
50 DIM a(&1000)
60 CLS
70 'searches from &b000 to &c000
80 FOR i=&B000 TO &C000
90 a(i-&B000)=PEEK(i)
100 NEXT i
110 FOR i=&B000 TO &C000
120 IF a(i-&B000)<>PEEK(i) THEN a(i-&B000)=999
130 NEXT i
140 FOR i=&B000 TO &C000
150 IF a(i-&B000)<>PEEK(i) AND a(i-&B000)<>999 THEN a(i-&B000)=999
160 NEXT i
170 FOR i=&B000 TO &C000
180 IF a(i-&B000)<>PEEK(i) AND a(i-&B000)<>999 THEN a(i-&B000)=999
190 NEXT i
200 '
210 'insert the BASIC command here
220 INK 1,15
230 '
240 FOR i=&B000 TO &C000
250 IF a(i-&B000)<>PEEK(i) AND a(i-&B000)<>999 THEN PRINT i,a(i-&B000),PEEK(i)
260 NEXT i
270 PRINT "location          was          is now"
```

## Amstrad

### LOCK

IMAGINE YOU'VE JUST left the room and gone down to the shops for a minute. Your little brother sees you leave and thinks *uh huh... this is my chance.* You get back and sit down, ready to run a program when you catalog. Your heart sinks as you see

```
10 REM ### LOCK ###
20 REM 'Miroslav Kostecki Dec '86
30 '
40 ON BREAK GOSUB 160
50 PRINT "I am on strike!"
60 PRINT "Ready"
70 GOTO 180
```

## Amstrad

all your programs changed and rearranged. No more Mr Nice Guy. *You'll get him back.*

This small program can be used to protect any or all of your programs. If you run the program, it can either print a statement such as 'I am on strike...', or simply 'ready'. Your little brother trying to break into your programs then gets the impression that nothing has happened. However, as he will soon see, all functions and commands are disabled. The only possible way of getting out is to cold boot, or if you know the password, this lets you gain access to the programs involved.

The password in this example is "omnibus". Once past the password, the program then redefines the function keys in [Enter] and [.] . This enables you to press [Enter] number, and the user catalog appears. If you press [.] , it changes the colours and graphics back to the basic colours stated at the start of the program and lists the catalog. Revenge is sweet. Peeking through the keyhole, you see your little brother sweating it out at the computer, having no luck at all. No need to worry anymore.

Miroslav Kostecki,  
and Paul Vermeer,  
Elizabeth Park, SA

```
80 '
90 ' this section changes the ENTER &
    Keys
100 r$=CHR$(13): l$=CHR$(124)
110 KEY 139,r$+CHR$(124)+"user,"
120 KEY 138,r$+"mode 2:cat:paper 0:pen 1
    :ink 1,0:ink 0,13:border 10"+r$
130 NEW
140 '
150 ' here we have a typical simulation.
    ..
160 ON BREAK GOSUB 160
170 PRINT"*Break*"
180 LINE INPUT "",a$
190 IF a$="omnibus" THEN 100
200 GOTO 180
```

## Amstrad

### IN SEARCH OF THE NUMBER

THIS RELATIVELY simple program was constructed from a small program I used to do when I was learning Basic. Soon after I started learning, my teacher told me to think up a program with the player guessing the computer's number.

This is simply an expansion of that program. You're asked the minimum and maximum numbers you want for the range. The

```
10 REM ###In Search Of The Number###
15 REM 'Paul Vermeer Dec'86
20 '
30 REM Set Up Screen
40 MODE 1
50 BORDER 1
60 INK 1,24
70 INK 0,1
80 INPUT "What is your name";name$
90 PRINT:PRINT
100 PRINT "Do you want instructions Y/N"
110 a$=INKEY$: IF a$="" THEN 110
120 IF a$="n" THEN 290
```



## Amstrad

computer then randomly chooses a number between the given values and lets you guess until you get it right, each time telling you higher or lower. Once you guess it right, the computer tries to guess your number. Whoever takes the most shots, scores the equivalent number of points. The first to 30 loses the game. You can make the game longer or shorter by changing the value of 30.

Miroslav Kostecki,  
and Paul Vermeer  
Elizabeth Park, SA

```

130 comp=0: you=0
140 '
150 REM Instructions
160 CLS
170 PRINT "The comp will firstly randomi
ze a number between the minimum and maxi
mum values you want."
180 GOSUB 1200
190 CLS
200 PRINT "You then guess at the number,
(each time the computer telling you that
your higher or lower then the required
amount) until
1 you get it right."
210 PRINT
220 PRINT "The computer then records how
many tries it took you to guess it righ
t and reverses the roles, letting you pi
ck the numbe
r this time."
230 PRINT
240 PRINT "After this process is finishe
d, the computer works out who took less
tries and scores points equivalent to th
e number of
tries against the one who lost."
250 PRINT
260 PRINT "The first one to 30 loses the
game."
270 GOSUB 1260
280 GOTO 330
290 '
300 REM Computer Picks Number
310 CLS
320 GOSUB 1200
330 ran=INT(RND*(maxi-mini)+mini)
340 '
350 REM Have A Guess
360 CLS
370 PRINT "I have figured out my number.
Take a guess"
380 count=0
390 INPUT guess
400 IF guess=ran THEN 430
410 IF guess<ran THEN CLS:PRINT,"Higher.
..Try again.":count=count + 1:GOTO 390
420 IF guess>ran THEN CLS:PRINT "Lower..
..Try again.":count=count + 1:GOTO 390
430 count=count + 1
440 IF count<=3 THEN CLS:PRINT "Excellen
t...It took you ";count;" shots.":PRINT:
PRINT:GOSUB 1260:GOTO 490
450 IF count>3 AND count<10 THEN PRINT:P
RINT:PRINT "Good...It took you ";count;"
shots.":PRINT:PRINT:GOSUB 1260:GOTO 490
460 IF count>9 AND count<20 THEN PRINT:P

```



# president

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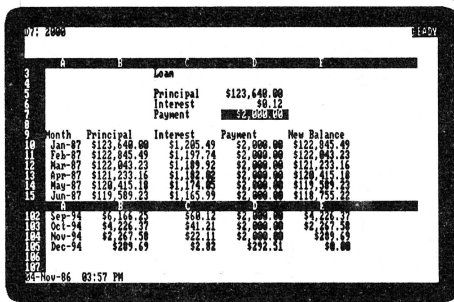
## MegaFreeze

The MegaFreeze software package allows you to take a snapshot of your monitor screen in any PC application. The screen image is placed in the MegaBuffer (1.3 megabyte pixel buffer) with the same resolution as your monitor's display mode. Then with the MegaScan software, you can enhance or add text to your MegaFreeze image before including the image in a larger document.

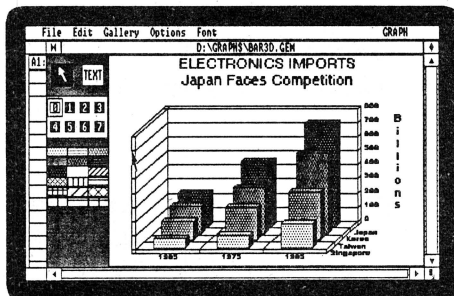
MegaFreeze is ideal for documenting software programs containing menus or option lists. The screens in your software program can be captured and used as illustrations as you proceed to document the program's features.

MegaFreeze is also great for illustrating sequences in installation or test procedures. Depending on your screen resolution, up to 76 freezes can sequentially be created and placed in the MegaBuffer.

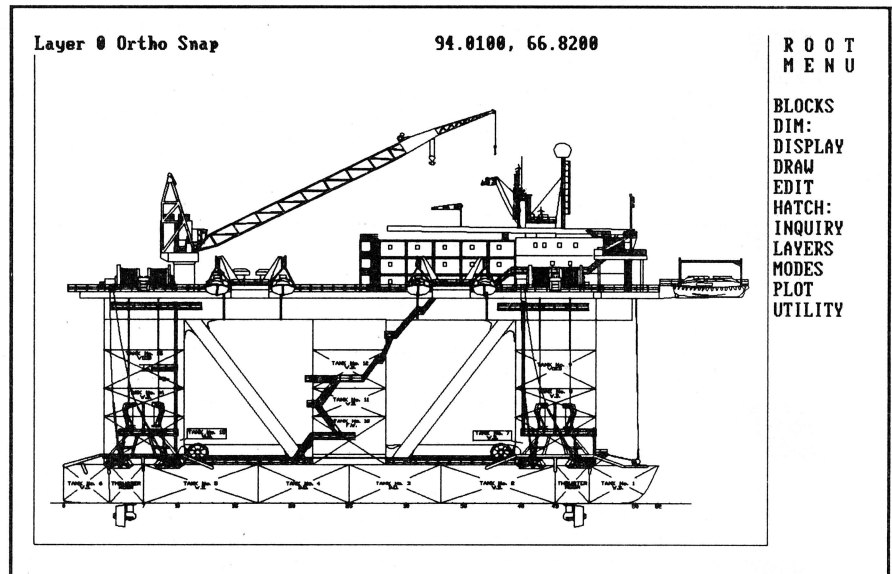
MegaFreeze images can also be used for introducing, highlighting, or describing the features of a new software product in your newsletter.



Lotus, 1-2-3 Screen



GEM Graph Screen



AutoCAD Screen Captured Using MegaFreeze and Wyse WY-700 Monitor

## MegaFreeze Features

- \* Memory resident software program compatible with other memory resident programs. Activated by the Shift-PrtSc (Print Screen) keys.
- \* Installable on any IBM PC-XT, PC-AT, or compatible that has a MegaBuffer card and a MegaScan software program already installed.
- \* Supports the Color Graphics Adaptor (CGA) display monitor in all modes except 40 column by 25 line text mode.
- \* Supports the Wyse WY-700 monitor in 1280 x 400 mode and in 1280 x 800 mode.
- \* Display modes, double size freeze option, and inverse video option selectable from the command line.
- \* Up to 76 screen freezes can be placed in the MegaBuffer at one time depending on the MegaFreeze freeze size option selected and the resolution of the monitor you are using.
- \* Flow files are provided to combine freezes with an outer black frame to create a "screen" look. Flow files can also be used to isolate a freeze so it can be moved, edited, or saved.

## Typical Applications

- \* Technical manuals
- \* Software manuals
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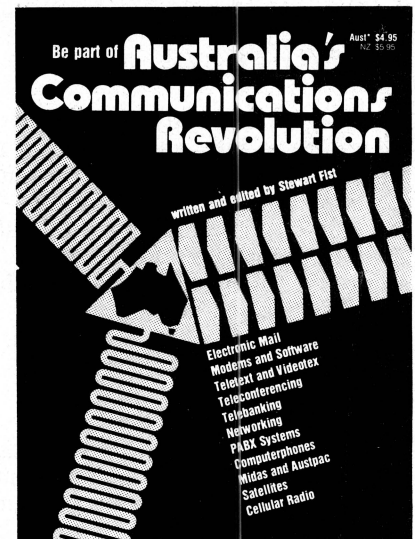
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When we analyse the recent past and project the immediate future, computers and communications technologies play a vital part, but we must avoid the tendency to look only to the hardware level. The fact that technologists have appropriated words like 'communications', 'information' and 'data' and given them electronic rather than social meanings, should not disguise the fact that in the final analysis, communications involves people and ideas, not electronic bit and bytes.

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## Amstrad

```

RINT:PRINT "Not very good...It took you
";count;" shots":PRINT:PRINT:GOSUB 1260:
GOTO 490
470 IF count>20 THEN PRINT:PRINT:PRINT "
ARE YOU AWAKE!!!!...It took you an INCRED
IBLY PATHETIC ";count;" shots. Give up!
!!":PRINT:PR
INT:GOSUB 1260:GOTO 490
480 '
490 REM Your'e Turn
500 CLS
510 PRINT "Now it's your turn to pick a
number."
520 GOSUB 1260
530 '
540 REM Computer Guesses
550 number=0
560 CLS
570 gue=CINT((maxi-mini)/2-0.25)+mini
580 IF maxi=mini THEN PRINT:PRINT:PRINT"
It must be ";mini:GOTO 640
590 PRINT gue
600 INPUT "is your number higher, lower
or the same H/L or S";is$
610 IF is$="H" OR is$="h" THEN mini=gue
+ 1:number=number + 1:GOTO 560
620 IF is$="L" OR is$="l" THEN maxi=gue
- 1:number=number + 1:GOTO 560
630 number=number + 1
640 FOR a=1 TO 2000:NEXT:CLS
650 PRINT "It took me ";number;" shots."
:PRINT:PRINT
660 IF number<count THEN PRINT "I WIN!!!
...You get";count;"points against you.":
you=you + count:GOTO 690
670 IF number>count THEN PRINT "You win.
..I get";number;"points against me.":com
p=comp + number:GOTO 690
680 IF number=count THEN PRINT "We tied.
..We both get ";number;" points against u
s.":you=you + 1:comp=comp + 1:GOTO 690
690 LOCATE 9,25
700 PRINT "press any key to cont'"
710 a$=INKEY$:IF a$="" THEN 710
720 CLS
730 '
740 REM Points Table
750 CLS
760 PLOT 0,0
770 DRAW 639,0:DRAW 639,399:DRAW 0,399:D
RAW 0,0
780 PLOT 10,10
790 DRAW 10,389:DRAW 629,389:DRAW 629,10
:DRAW 10,10
800 PLOT 20,20
810 DRAW 619,20:DRAW 619,379:DRAW 20,379

```



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VIASOFT is an easy-to use communications program for Telecom Australia's VIATEL database service. It is now available for the IBM PC and compatibles, as well as Amust 816, Bondwell 14, Kaypro 2, 4 and 10, Osborne 1 and Osborne Executive computers and others (let us know your needs).  
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Viatel 625476080.

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Amust 816



Bondwell 12, 14



Kaypro 2, 4, 10



Osborne Executive



Osborne 1



Monroe OC 8820



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# POCKET PROGRAMS

## Amstrad

```

: DRAW 20,20
820 MOVE 3,3
830 INK 2,6
840 FILL 2
850 MOVE 13,13
860 INK 3,2
870 FILL 3
880 PLOT 320,379
890 DRAW 320,200
900 PLOT 20,200
910 DRAW 619,200
920 PLOT 20,349
930 DRAW 619,349
940 '
950 REM Writing
960 LOCATE 7,3
970 PRINT "COMPUTER"
980 LOCATE 26,3
990 PRINT UPPER$(name$)
1000 LOCATE 10,7
1010 PRINT comp
1020 LOCATE 9,9
1030 PRINT "POINTS"
1040 LOCATE 27,7
1050 PRINT you
1060 LOCATE 26,9
1070 PRINT "POINTS"
1080 IF you>=30 THEN 1300
1090 IF comp>=30 THEN 1340
1100 LOCATE 9,23
1110 PRINT "press any key to cont'"
1120 IF INKEY$="" THEN 1120
1130 CLS
    
```

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Well, almost free. We don't charge for the public domain software but there is a small service charge of \$15 per disk to cover promotion costs, selection, testing, copying, etc. Disks are available for CP/M, MS-DOS and APPLE. Mail and telephone order only.

The programmes have been carefully selected, tested and documented. They'll run on a wide variety of computers that accept 5¼" disks. We have tried to choose programmes as machine-independent as possible. However we cannot guarantee the suitability of programmes for your particular machine. Wherever possible we include source-code.

MS-DOS programmes are aimed at the IBM-PC and close compatibles. The NEC APC III will often require the software library extension card to be able to execute these programmes.

Documentation is included on the disks where required — often it is very extensive. Unfortunately, we are unable to provide telephone tutorials on using the programmes.

MS-DOS disks are formatted for standard MS-DOS 2.11 360K. Testing has been carried out for CP/M disks on a Z80 Kaypro II.

About 120 different formats are supported, including Kaypro, Osborne, Tandy, Microbee, Bondwell, Commodore 128, Televideo and Apple II.

## MS/DOS

### GAMES

**M11: MONOPOLY NEW RELEASE.** Now contains three versions of this popular board game. New addition is 109K.

**M1020+: MORE GREAT TRIVIA.** A two disk set which includes categories for science and nature, entertainment, sports and recreation, and general. \$30.

**M1021+: EAMAN ADVENTURES.** A classic two disk set which not only provides sophisticated adventure games but also a menu driven facility to design your own games. Require Basic. \$30. They can grip your attention for hours.

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**M1024: PHRASE CRAZE.** An entertaining quiz-type games which asks you part of a phrase and requires you to complete it. Highly regarded.

**M1025: AMULET OF YENDOR.** Adventure with graphics. A Dutch programme with 20 levels of play against many monsters and powerful magic. You have choice of roles.

**M1026: 5 TEXT ADVENTURE GAMES.** Of different types, including a murder mystery, horror, pirate, etc.

**M1027: SUPER HANGMAN.** Highly acclaimed version that has larger vocabulary than most and includes quotations, riddles and music. Fascinating and educational.

**M1028: SUPER COMPILED GAMES (3).** Another excellent selection of compiled games ready to run. Includes Flightmare, Solitaire, Jumpjoe and more.

**M1029: LANDING PARTY.** You select the crew (friends, movie stars, etc.), which is stranded on a planet searching for energy crystals. The adventure confronts you with different situations and characters.

**M1030: PROVOCATIVE PICTURES.** A collection of hi-res digitized graphics, which are printed. These are naughty pin-ups and not suitable for or available to children.

**M1031: WILLY THE WORM.** This is a high quality game which allows you to build your own game board.

**M1032: GREAT BASIC GAMES (3) AND ZORK UTILITY.** A very entertaining selection including Boogers!, Fun, Rieman, Godcreat, Pirate, Temple and more.

**M1033: SUPER COMPILED GAMES (4).** A super collection of arcade-type games, including Astro, Chase, Crisis, Dilemma, Mazel, Q-Bert, and more.

**M1034: TRIVIA GAME (3).** The third in our popular series. This time questions are in the categories: TV shows, Science, Star Wars, Star Trek, Words, Astronomy, General.

**M1035: MORE DUNGEONS, MORE DRAGONS.** Good text-based descendant of the dungeons and dragons fantasy. Does not require graphics board.

**M1036: MAHJONG.** An outstanding Australian programme of the Chinese card game with good graphics. It works with mono or colour. Can be addictive.

### UTILITIES

**M2021: UNIX COMMAND SHELL.** Have you been wanting to control your programmes with commands similar to these available in Unix?

**M2022: TShell-DOS MANAGEMENT.** Provides an efficient environment for managing your operating system. Also has help screens.

**M2023: BATCH LANGUAGE ENHANCEMENT.** DOS's "batch" capability is similar to a language, with nouns and verbs to automatically combines (batch) and execute commands. This programme gives you more features and control when operating .Bat files.

**M2024: CODE BREAKER.** For those with an interest in deciphering codes/ciphers, this is a useful analytical aid.

**M2025+: DOS EXTENSIONS.** A two disk set of enhancements for the command of DOS. The first disk contains documentation, the second has the executable programmes.

**M2026: CALTECH UTILITIES.** A special collection which includes resident cut and paste, printer commands, pop-up tables, graphics characters, bad sector fix, hex file editor, directory utilities, ansisys replacement, echo replacement, and more.

**M2027+: EXCEPTIONAL FILE & DOS UTILITIES.** A two-disk collection of many powerful tools — such as fast format, alarm clock, disk wipe, display colour as shades of gray, file sorter, text reader, line counter, read squeezed library files, create files from memory, digital clock display, dos syntax reference, cursor speed-up, create secret directories, etc. \$30

**M2028: ENHANCED CONSOLE DRIVER.** Fansi Console offers many time saving and convenience features by controlling keyboard and screen. Create keyboard buffers, backscroll, keystroke macros, etc.

**M2029: DART'S DOS UTILITIES.** A special collection which includes file copy and move, file preview, sorted directories, file protection and more.

### WORD PROCESSING/PRINTING

**M3013: PRINT QUALITY ENHANCER.** Image Print allows you to use a standard dot matrix printer for high quality printing and formatting.

**M3014: SIDEWRITER.** Will generate printed output sideways to fit wide reports onto a page for you.

**M3015: SUPER KEY-DEFINERS.** Reduce the amount of writing that you do by creating macros that can insert blocks of text with a single keystroke. Two beaut programmes (Hot Key and Soft Touch) for more efficient writing.

**M3016: WORDSTAR UTILITIES.** A special collection of utilities that expand the power of Wordstar and make it easier for you to use.

**M3017: PRINTING PREVIEW.** Many word processors do not show you the end product on the screen — italics, bold, etc. This previewer lets you see what you'll be getting before you print.

**M3018: DIAGRAMME AND TEXT EDITOR.** If your needs combine text with simple diagrammes then this editor is for you. It takes special advantage of full-screen control.

### GRAPHICS

**M4009+: GRAPHICS FOR LOTUS/SYMPHONY.** A two disk set called Draftsman which provides special display features to improve the presentation of 123/Symphony datagraphs and slide shows. \$30

**M4010: TURBO FONT DESIGNER.** Design other patterns in place of those contained in the ASCIIset. Makes it easier to design special characters, letters, etc. Especially for Turbo Pascal programming.

**M4011: GRAPHICS ICON CREATOR.** Especially suits creation of symbols and logo-type characters. Contains Icon-Maker.

**M4012: TALK ILLUSTRATOR.** "Present" is an easy-to-use programme which provides bold lettering and other special features for slide presentation.

**M4013: PAINT-TYPE GRAPHICS.** A comprehensive "paint" programme for medium and high resolution graphics that can also be printed. Uses slabs of colour, shading etc. for its effects. Requires coloured monitor.

### LANGUAGES

(For tutorials, see Education Section)

**M84: PROLOG NEW VERSION.** 1.8 is now available.

**M5017: SPRITES AND ANIMATION FOR TURBO PASCAL.** Source code and instruction for adding animation sprites to your programmes.

**M5018: BASIC AIDS (3).** Has special programmes to remove numbers from your Basic programmes and to restore them.

**M5019: TURBO TOOLS.** A collection of numerous small Turbo Pascal programmes that illustrate the book "Complete Turbo Pascal". Some highly useful utilities plus examples of routines you can include in your own programmes.

**M5020+: CROSS COMPILER.** A very sophisticated compiler for experienced programmers. A universal cross compiler that allows translation from one language to another. Contains Regular Expression Compiler. Two disk set. \$30.

**M5021: SCREEN GENERATOR.** PC-Input is a new aid for designing screens in Basic. Has lots of nice features that help you improve the screen appearance of your programmes.

**M5022: WINDOWS FOR BASIC & "C".** This is a collection of functions that give windowing capability to your programmes. Has special cursor control, and string character display as well as border drawing. Very fast effects.

**M5023: CROSS ASSEMBLER.** Xasm lets you use your computer to develop programmes for other computers, especially the Z80 family. Requires 192K of memory.

**M5024: TOOLS FOR TURBO PASCAL.** Valuable tools for the programmer — convert and manipulate dates, display, and manipulate dates, display, edit and validate data entry fields and lots more.

**M5025: TURBO PASCAL DEBUGGER.** An interactive debug with pop-up help, formatters etc.

**M5026: MACRO ASSEMBLER.** Many have been waiting for this. If you didn't get a good macro assembler with your operating system, this one is a fine choice.

# FREE SOFTWARE

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**M5027+: TURBO PASCAL ROUTINES (3).** A four disk set which contains hires graphics, date conversion, window creation, chain-file conversion to com, sieve, floating point test, sorted directory, direct disk access, hex/ascii display, screen editing, read hidden files, translate 8088 assembler to Inline code, fast string writer, screen scrolling, statistical and mathematical calcs, and more. \$40.

**M5028+: ASSEMBLER ROUTINES AND UTILITIES.** 1A three disk set containing dozens of time-saving routines, teaching examples and programming aids, including memory usage, system status, line drawings, file sorting, keyboard buffer expansion, large file loader, square roots, file search, screen clear, clock display, directory, text editor, free space, passwords, etc.

**M5029: SPECIAL BASIC AIDS (3). BASIC SUB-ROUTINES LIBRARY.** A special collection for Basic programmers. Calculate date and day of week, access directory commands, get drive no., heapsort, quicksort, shellsort, clear screen, create and save screens, etc.

## COMMUNICATION

**M108:** Qmodem 22.2 latest update is now available.

**M6011: COMMUNICATION UTILITIES.** These supplementary tools are useful for Qmodem and Procomm, two of the best communications programmes available.

**M6010: PROCOMM Ver.2.3.** A many-featured Modem Comms programme that is receiving wide critical acclaim overseas. The main programme is 141K.

## BUSINESS/CALCULATION

**M122: SPREADSHEET.** Contains a new version (Version 2) of FreeCalc which has been substantially up-graded. Suitable for home and business budgeting with many more nice features for general use. Has full documentation. Needs enhanced graphics board, such as Hercules, or colour monitor.

**M128+: INTEGRATED SPREADSHEET. NEW VERSION ANALYTICALC (Vx20.04).** A fast and sophisticated extensive spreadsheet programme with integrated word processor/spreadsheet/database/graphics. Three disk\_set \$45. Compiled Fortran source provided.

**M7019: RETAIL POINT OF SALE.** A system for point of sale control of stock/debtors/invoicing. Written in compiled Basic. Needs Basrun.Exe and a hard disk.

**M7020+: STATISTICAL TOOLS.** A two disk set of utilities that determines sample sizes and confidence intervals, performs, randomization tests, generates randomization plans, calculates various distributions, and much more! \$30.

**M7021+: LOTUS UTILITIES AND WORKSHEETS.** A two disk set for printing formulae, installing EGA, preparing text for input into worksheets, setting up 640K virtual memory, installing on hard disk, etc. Has worksheets for trend lines, interest calc., printing special characters, calc. loans, managing portfolios and rental property, etc. \$30.

**M7022+: INCOME AND EXPENSE TRACKER.** Which records input of operations and has a reporting system with many nice features and show you how much you are spending and whether there is anything left for you! Two disks. \$30.

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**M7024: PAYROLL SYSTEM.** Comprehensive, menu-driven system for small to medium-sized companies. Ok for floppy or hard disks.

**M7025+: LOTUS 123 UTILITIES AND WORKSHEETS.** A two disk set that includes a file link — front end that allows easier access to worksheets. The set also includes worksheets for cheque book, loan instalments, mailing list maintenance, time management, printer utilities, financial application, etc. \$30.

**M7026+: SYMPHONY TIPS AND WORKSHEETS.** A special set of six disks which include tips on using word processor, importing multipian data, using sidekick; applicational for banking, insurance and medical; also 5 years business plans; loan, mailing list, cheque book macros; worksheets for appointments, biorhythms, graphics, telephone redial, disk tables, and lots more. 6 disks for \$60 instead of \$90.

**M7027: PROJECT MANAGEMENT.** Gantt Charts. Produces presentation-quality Gantt Charts' transparencies, drives a video projector, displays project status and more.

**M7028: MANAGING MONEY.** Earning an income is only part of the task. This disk helps you to keep some of it and assists in making your capital grow.

## DATA BASE MANAGEMENT

**M143+: FAMILY TREE.** New version - 4 - of Genealogy on Display is now available. Two disk set the extensive supplementary notes. \$30.

**M8012: LABEL PRINTING.** A collection of special programmes that allows you to print labels for all sorts of uses, as well as control mailing lists. Includes Label Maker and others.

**MN8013: FREE FILE.** A menu-driven, easy to use relational data base that allows 100 fields and up to 3 billion records. Does calculations and comparisons. Powerful enough for advanced use. Easy enough for beginners.

**M8014: INSTANT RECALL.** A memory-resident database that lets you record and access information without leaving your main programme. Happily co-habits with other programmes.

**M8015: INVENTORY-STOCK CONTROL.** A menu-driven, very fast system for keeping inventories up to date. Suits business that supplies products or parts.

**M8016: MAIL MANAGER FOR MULTIMATE.** Menu-driven label producer. Lists created can be accessed by Multimate, merged with forms, etc.

## EDUCATION

**M9007: SECONDARY MATHEMATICS.** A collection of Basic programmes that instructs in trig/complex functions/line equations/area calculation/formula conversion/multiplication/quadratic/subtraction/imperial-metric conversion/slopes/co-ordinates/logarithmic functions/determinants/function points, etc.

**M9008+: "C" TUTOR.** A two disk set that contains a comprehensive and easily followed course in the "C" programming language. Includes tutorial text and source code for examples. Requires two drives. Suitable for those with prior experience in programming. \$30.

**M9009+: PASCAL TUTOR.** A two disk set that suits both the novice and experienced programmers, with references to Generic and Turbo Pascal. Contains the text and source code for examples. Good instruction in structured programming. Effective use requires a Pascal Compiler.

**M9010: INTRODUCTION TO BASIC PROGRAMMING WITH GAMES.** There is a well written tutorial on basic, plus number games, anagram puzzles, and a simple word processor. Programmes are in basic, with source code. Needs 2 disk drives.

**M9011: Teacher's Gradebook.** Keeping track of test marks and providing comparisons and reports.

**M9012: ANSWER CHECKER.** This programme compares words, sentences, terms, definitions, questions and answers. Also displays the correct answers. Excellent tool for drill-type study, etc.

**M9013: STRUCTURED PROGRAMMING TUTORIAL & AID.** A tutorial on concepts of structured programming with a working tool for designing and documenting the structure of programmes. Especially good for Turbo Pascal programmers.

**M9014: ARITHMETIC GAME.** Uses Funnels and buckets. You must type incorrect answer before the problem drops into a bucket.

## GENERAL

**M9501: DIETER'S FRIEND.** A nutrition analysis programme that provides details of 27 nutrients in different foods, etc. and compares your daily intake with recommended allowances. Also produces graphs. Requires Basic.

**M9502+: BIBLICAL QUOTES.** A two disk set of 14800 cross-references to 7956 verses of the New Testament. Has built in editor for preparing lectures, letters, sermons, essays etc.

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## Apple II+

### LISTER

LISTER IS AN Apple II+ program designed to keep a list of items. These items can be added to, subtracted from, and sorted, then later printed out in a three column outlay.

The program holds this list as a text file with a theoretical maximum of 200 entries, though I have never come near this level. The program checks the catalogue on the disk for its files, this is done between lines 1240 and 1450.

On finding its files, it will give you the option of choosing one. If it cannot find any, then it will request to try again. At both of these times you can opt to start a new file.

Once chosen, the file will load and you will be presented with the option of editing, an 'N' will jump the print mode. Whilst in edit mode you can; delete items, list them, change the topic or exit the edit mode.

Items are deleted by typing 'I' this will present you with the first item, pressing the '/' key will delete it, while any other key will advance through the list (very quickly). A '4' returns you to the beginning and a '2' will leave edit mode, sorting if any alterations have been made and then saving.

To print the list, answer 'N' to the edit question. The program will print up the list on the screen, and depending on the amount of items, will choose between 1/8 and 1/6 inch line spacing, then print the list.

This program also has an error capture mode from line 1630 to 1740, and will, depending on the error, give you a second chance. The command in line 1630 is basically a machine language program, loaded from the data statements, to fix up the error in the 'ON ERR GOTO' command.

Steven Bauer  
Yowey, Victoria.

```

10 RE$ = ""
20 ONERR GOTO 1630
30 D$ = CHR$(13) + CHR$(4)
40 TEXT
50 PRINT D$;"MONC,I,0"
60 DIM NA$(200),PR$(202),NX$(16)
70 HOME : PRINT : FLASH : PRINT "LISTER
80 NORMAL
90 PRINT
100 PRINT "VERSION 4.6      DONE: 8/12/86"
110 PRINT "-----"
120 POKE 34,5
130 FOR X = 1 TO 200:NA$(X) = "...":NEXT X
140 HOME
150 PRINT : PRINT : PRINT
160 GOTO 1240
170 PRINT
180 PRINT "LOADING OFF DISK"
190 NORMAL
200 Z = 0
210 PRINT D$;"OPEN";FI$
220 PRINT D$;"READ";FI$
230 Z = Z + 1
240 INPUT NA$(Z)
250 IF NA$(Z) = "***" THEN 270
260 GOTO 230
270 PRINT D$;"CLOSE";FI$
280 NA$(Z) = ""
290 Z = Z - 1
300 PRINT : PRINT : PRINT
310 INPUT "DO YOU WISH TO EDIT";IN$
320 IF LEFT$(IN$,1) = "Y" THEN 560
330 PR$(Z + 1) = "...":PR$(Z + 2) = ""
340 FOR X = 1 TO Z
350 A$ = " "
360 PRINT X;" ";LEN(NA$(X)),NA$(X)
370 IF LEN(NA$(X)) = 22 THEN PR$(X) = NA$(X):NEXT X
380 PR$(X) = LEFT$(NA$(X) + A$,22)
390 NEXT X
400 PRINT D$;"PR#1":POKE 1657,75
410 PRINT CHR$(27) + "2"
420 IF Z > 175 THEN IF Z < 216 OR Z > 343 THEN PRINT CHR$(27) + "0"
430 PRINT : PRINT : PRINT
440 T$ = RIGHT$(FI$, (LEN(FI$) - 5))
450 PRINT CHR$(27) + CHR$(14);"LIST OF ";T$;CHR$(10)
460 PRINT
470 FOR X = 1 TO Z STEP 3
480 PRINT PR$(X);" ";PR$(X + 1);" ";PR$(X + 2)
490 NEXT X
500 PRINT D$;"PR#0"
510 INPUT "ANOTHER LIST";AL$
520 IF LEFT$(AL$,1) < > "Y" THEN END
530 INPUT "SAME AS BEFORE";AL$
540 IF LEFT$(AL$,1) = "Y" THEN 310
550 GOTO 130
560 FL = 0
570 PRINT : INVERSE : PRINT " EDIT MODE ": NORMAL
580 PRINT "LIST OF ";RIGHT$(FI$, (LEN(FI$) - 5))
590 PRINT "ENTER NEW NAME OR REQUEST NUMBER"
600 PRINT
610 PRINT "<1> - DELETE"
620 PRINT "<2> - EXIT"
630 PRINT "<3> - LIST"
640 PRINT "<4> - CHANGE TOPIC"
650 PRINT
660 INPUT SS$
670 SS = VAL(SS$):IF SS < 5 AND SS > 0 THEN 690
680 GOTO 750
690 PRINT : PRINT
700 ON SS GOTO 1030,720,1210,130
710 GOTO 570
720 IF FL = 0 THEN GOTO 310
730 PRINT "ALPHABETIZING"
740 GOTO 810
750 IF LEN(SS$) > 22 THEN SS$ = LEFT$(SS$,22)
760 IF SS$ = "..." OR SS$ = "" OR SS$ = "***" THEN 570
770 IF ASC(LEFT$(SS$,1)) < 33 THEN 570
780 FL = 1
790 PRINT : PRINT
800 Z = Z + 1:NA$(Z) = SS$:GOTO 570
810 FOR K = 2 TO Z
820 SO = PEEK(-16336)
830 J = K - 1:L$ = NA$(K)
840 IF L$ > NA$(J) THEN 870
850 NA$(J + 1) = NA$(J)
860 J = J - 1:IF J > 0 THEN 840
870 NA$(J + 1) = L$:NEXT K
880 IF NA$(1) = "..." OR NA$(1) = "" OR NA$(1) = "***" THEN A = 1:GOSUB
1160:GOTO 880
890 PRINT : PRINT
900 PRINT : FLASH : PRINT "SAVING"
910 NORMAL

```



# POCKET PROGRAMS

## Apple II+

```

920 PRINT D$;"OPEN";FI$
930 PRINT D$;"DELETE";FI$
940 PRINT D$;"OPEN";FI$
950 PRINT D$;"WRITE";FI$
960 FOR X = 1 TO Z
970 PRINT NA$(X)
980 NEXT X
990 PRINT "***"
1000 PRINT D$;"CLOSE";FI$
1010 GOTO 310
1020 RETURN
1030 PRINT "PRESS '/' TO DELETE. ANY OTHER TO CONTINUE"
1040 D = 0
1050 FOR X = 1 TO Z
1060 PRINT NA$(X);" -> ";
1070 GET Z$: PRINT
1080 IF Z$ = "/" THEN NA$(X) = "...":FL = 1:D = 1: INVERSE : PRINT "DELE
TED": NORMAL
1090 NEXT X
1100 PRINT : PRINT : PRINT
1110 IF D < > 1 THEN 570
1120 FOR Y = 1 TO Z
1130 IF NA$(Y) = "... " OR NA$(Y) = "" OR NA$(Y) = "***" THEN A = Y: GOSUB
1160
1140 NEXT Y
1150 GOTO 1210
1160 FOR Q = A TO Z
1170 NA$(Q) = NA$(Q) + 1
1180 NEXT Q
1190 Z = Z - 1
1200 RETURN
1210 FOR X = 1 TO Z
1220 PRINT X,NA$(X)
1230 NEXT X: GET VV$: PRINT : PRINT : GOTO 570

```

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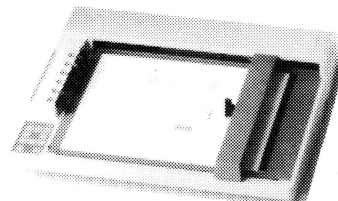
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# POCKET PROGRAMS

## Apple II+

```

1240 VS = PEEK (106) * 256 + PEEK (105)
1250 POKE VS + 2,240: POKE VS + 3,14: POKE VS + 4,150
1260 DATA 169,3,160,9,32,217,3,36,0,1,96,1,0,17,15,251,183,0,150,0,0,1
      ,0,254,96,1,104,168,104,166,223,154,72,152,72,96
1270 FOR I = 768 TO 803
1280 READ X: POKE I,X
1290 NEXT I
1300 RESTORE
1310 F = 496: C = 0: NX = 0
1320 L$ = CHR$ (204) + CHR$ (201) + CHR$ (211) + CHR$ (212) + CHR$ (
      174)
1330 FOR X = 15 TO 1 STEP - 1
1340 POKE 782,X: CALL 768
1350 ZZ = - 34
1360 FOR Y = - 27125 TO - 26915 STEP 35
1370 ZZ = ZZ + 35
1380 Z = PEEK (Y + 33): IF Z = 0 THEN 1460
1390 C = C + 1
1400 IF PEEK (Y) = 255 THEN 1440
1410 F = F - Z
1420 XX$ = MID$ (RE$,ZZ,30)
1430 IF LEFT$ (XX$,5) = L$ THEN NX$ (NX) = XX$: NX = NX + 1
1440 NEXT Y
1450 NEXT X
1460 IF NX < > 0 THEN 1510
1470 PRINT "NO FILES ON DISK": PRINT : PRINT "PRESS <I> TO IGNORE, OR AN
      Y OTHER KEY TO RETRY": GET ND$
1480 PRINT
1490 IF ND$ = "I" THEN 1750
1500 GOTO 1310
1510 IF NX = 1 THEN FI$ = NX$ (0): GOTO 170
1520 PRINT : PRINT " FILES:"
1530 PRINT
1540 PRINT " 0 GO STRAIGHT TO EDIT MODE"
1550 FOR X = 0 TO NX - 1
1560 PRINT " "; X + 1; HTAB 8: PRINT RIGHT$ (NX$ (X), (LEN (NX$ (X)) - 5
      ))
1570 NEXT X
1580 PRINT : INPUT " ENTER NUMBER "; NU
1590 IF NU = 0 THEN 1750
1600 IF NU < 1 OR NU > NX THEN 1580
1610 FI$ = NX$ (NU - 1)
1620 GOTO 170
1630 CALL 794
1640 EL = PEEK (219) * 256 + PEEK (218)
1650 ET = PEEK (222)
1660 IF ET = 255 OR ET = 254 THEN RESUME
1670 INVERSE : PRINT CHR$ (7)
1680 IF ET = 8 THEN PRINT "I/O ERROR - REINSERT DISK": NORMAL : GET XZ$
      : RESUME
1690 IF ET = 10 THEN PRINT "FILE LOCKED - PLEASE UNLOCK": NORMAL : END
1700 IF ET = 4 THEN PRINT "WRITE PROTECTED - REMOVE TAB": NORMAL : GET
      XZ$: RESUME
1710 IF ET = 5 AND EL = 230 THEN NORMAL : GOTO 270
1720 PRINT "ERROR NUMBER "; ET; " IN LINE "; EL
1730 NORMAL : PRINT
1740 END
1750 PRINT : INPUT "ENTER TITLE FOR THE ENTRIES"; F$
1760 IF F$ = "" THEN 1750
1770 IF LEFT$ (F$,5) = "LIST." AND LEN (F$) < > 5 THEN 560
1780 FI$ = "LIST." + F$
1790 GOTO 560

```

## IBM

### DIARY

THE PROGRAM IS written in IBM Basic and runs on an IBM PC/XT, or compatible. In order to work properly, the date must be set accurately.

Diary records reminder messages (items) on a random ac-

```

10 REM ***** DIARY PROGRAM *****
20 REM by TONY SHRAPNEL
30 REM This version completed 2 January 1987
40 REM
50 REM =====
60 REM INITIALIZATION
70 CLEAR: KEY OFF: CLS
80 TS=250: REM SETS THE SIZE OF INTERNAL ARRAYS (SUBJECT TO MEMORY)
90 DIM X$(TS), Y$(TS), Z$(TS), X$(TS), Y$(TS)
100 D$=DATE$: GOSUB 1660
110 XD$=D$: GOSUB 1740: XD$=VD$
120 OPEN "DIARY" AS #1
130 FIELD #1,8 AS CD$,8 AS DD$,112 AS I$

```



## IBM

cess disk file, together with the relevant due date and a 'call date'. The due date is entered by the user with the reminder message, and the computer calculates the call date which always occurs two weeks prior to the due date. When a record's due date is two weeks or less away, the item becomes current. Each day or two you print out a report which lists all the current items and their status.

The program allows you to enter new items, delete items, change an item's due date, and print out reports. Daily file management rarely takes more than a few minutes.

If you install the program on your DOS disk with your BASIC interpreter, you can load and run the program in one step by typing BASIC DIARY at the DOS prompt. As written, the DIARY file (as distinct from the DIARY-BAS program) will be created on Drive A. If you want the file created on Drive B, you can make the appropriate change to line 120 of the program.

When the program starts, you are presented with the following menu:

- 1 ... ADD ITEM/S TO FILE
- 2 ... CHANGE ITEM DATES
- 3 ... DELETE ITEM/S FROM FILE
- 4 ... PRINTOUT REPORT
- 5 ... END PROGRAM

Briefly discussing each item on the menu -

1 ... ADD ITEM/S TO FILE — When selected, the program prompts you for your item description (reminder message). The item description may be up to 112 characters in length. When the description has been entered, you are requested to enter the item's due date in the form: dd/mm/yy. You should insert the zeros in the single digit days and months

The program validates the date entry and invites you to re-enter it if necessary. The program will not accept today's date nor any previous date. Only future dates, including tomorrow, are accepted. Obvious mistakes (like a thirteenth month) are also not accepted.

```

140 CLS:PRINT TAB(25)"***** DIARY *****":PRINT :PRINT :PRINT
150 INFO$="":LNE$="-----"
160 PRINT TAB(10)"MENU":PRINT
170 PRINT TAB(10)"1....ADD ITEM/S TO FILE"
180 PRINT TAB(10)"2....CHANGE ITEM DATES"
190 PRINT TAB(10)"3....DELETE ITEM/S FROM FILE"
200 PRINT TAB(10)"4....PRINTOUT REPORT"
210 PRINT TAB(10)"5....END PROGRAM"
220 PRINT :PRINT :PRINT :PRINT
230 E=0:INPUT "ENTER NUMBER TO SELECT ACTION =====> ",E
240 IF E<1 OR E>5 THEN 140
250 ON E GOTO 270,600,740,850,1540
260 REM
270 REM =====
280 REM ADD ITEM/S TO FILE
290 INFO$="CURRENT ACTION: 1.ADD ITEM/S TO FILE"
300 CNT=0
310 CNT=CNT+1
320 IF CNT<TS THEN 380
330 CLS:PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "FILE IS FULL!!!!!!":M$=""
340 PRINT :PRINT "ENTER 'M' TO RETURN TO MENU"
350 INPUT "AND DELETE SOME ITEMS FROM THE FILE. ",M$
360 IF M$="M" OR M$="m" THEN 140
370 GOTO 330
380 GET #1,CNT
390 IF CVD(CD$)=0 THEN 410
400 GOTO 310
410 CLS:A$="":PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "TYPE IN AND ENTER YOUR
ITEM DESCRIPTION.":PRINT
420 PRINT "ENTER 'SAME' TO REPEAT PREVIOUS DESCRIPTION.":PRINT
430 LINE INPUT "ENTER 'M' ONLY TO RETURN TO MENU : ";A$
440 IF A$="M" OR A$="m" THEN 140
450 IF A$="SAME" OR A$="same" OR A$="Same" THEN LET A$=SAME$
460 PRINT :PRINT "CURRENT ENTRY: ";A$
470 DT$="":PRINT :INPUT "ENTER DUE DATE (dd/mm/yy): ",DT$
480 TST=0:GOSUB 1820
490 IF TST=1 THEN 470
500 XD$=DT$:GOSUB 1740:VD1#=VD#
510 GOSUB 1970
520 SAME$=A$
530 LSET CD$=MKD$(VD2#)
540 LSET DD$=MKD$(VD1#)
550 LSET I$=A$
560 PUT #1,CNT
570 GOTO 300
580 GOTO 140
590 REM
600 REM =====
610 REM CHANGE ITEM DATES
620 INFO$="CURRENT ACTION: 2.CHANGE ITEM DATES"
630 GOSUB 2260
640 DT$="":INPUT "ENTER THE NEW DUE DATE (dd/mm/yy): ",DT$
650 TST=0:GOSUB 1820
660 IF TST=1 THEN 640
670 XD$=DT$:GOSUB 1740:VD1#=VD#
680 GOSUB 1970
690 LSET CD$=MKD$(VD2#)
700 LSET DD$=MKD$(VD1#)
710 PUT #1,RN
720 GOTO 630
730 REM
740 REM =====
750 REM DELETE ITEM/S FROM FILE
760 INFO$="CURRENT ACTION: 3.DELETE ITEM/S FROM FILE"
770 GOSUB 2260
780 FOR J=1 TO 25:PRINT "Deleting record No. ";RN:NEXT J
790 LSET CD$=MKD$(0)
800 LSET DD$=MKD$(0)
810 LSET I$=""
820 PUT #1,RN
830 GOTO 770
840 REM
850 REM =====
860 REM PRINTOUT REPORT
870 REM SORT ROUTINE
880 INFO$="CURRENT ACTION: 4.PRINTOUT REPORT"
890 Q=0:CLS
900 PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "***** PLEASE WAIT *****"
910 PRINT " SORTING IN PROGRESS"
920 FOR J=0 TO TS
930 X$(J)=0
940 Y$(J)=0
950 Z$(J)=""
960 NEXT J
970 FOR J=1 TO (LOF(1)/128)
980 GET #1,J
990 IF CVD(CD$)=0 THEN 1040
1000 Q=Q+1
1010 X$(Q)=CVD(CD$)
1020 Y$(Q)=CVD(DD$)
1030 Z$(Q)=I$
1040 NEXT J
1050 FOR J=2 TO Q
1060 K=J

```

## IBM

When the due date has been accepted and you have confirmed it, the program prompts you for your next item description. If your next item is the same as your last, but with a different due date, (when, for example you wish to record a series of regular commitments) simply type the word 'same' and your previous description will also become your current description. Enter the next due date in the normal way.

When you have finished entering items, type 'M' at the prompt and you will return to the menu.

2... CHANGE ITEM DATES — Sometimes you will want to retain an item in the file, but change its due date. When selected, the program prompts you for the record number of the item whose date you wish to change. Records are sorted into date order prior to every printout, so record numbers change frequently as items are added and deleted.

When you have responded with a record number, the program displays the associated item description and asks you to confirm that it is the correct one. If it is, you simply enter the new due date in the normal way. If it is not, then you are returned to the main menu in order to obtain an up-to-date printout from which you can select the correct record number. When you have finished changing due dates, enter a zero when prompted for the record number and you will return to the menu.

3... DELETE ITEM/S FROM FILE — You should delete items from the file as they recede into history and become obsolete, or when they are otherwise not required. Once again, prior to deletion, you will be required to enter the appropriate record number, and confirm that it is correct. The item will then be deleted. Enter a zero instead of a record number when you have finished deleting items.

4... PRINTOUT REPORT — There are two types of report: the Current Item Listing, and the Full

```

1070 L=K-1
1080 IF X#(K)>X#(L) THEN 1150
1090 SWAP X#(K),X#(L)
1100 SWAP Y#(K),Y#(L)
1110 SWAP Z$(K),Z$(L)
1120 IF L=1 THEN 1150
1130 K=K-1
1140 GOTO 1070
1150 NEXT J
1160 REM =====
1170 REM PRINTING ROUTINE
1180 ON ERROR GOTO 1470
1190 LPRINT " "
1200 ON ERROR GOTO 2800
1210 CLS:ES="":PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "DO YOU WANT A FULL FI
LE LISTING OR"
1220 INPUT "A CURRENT ITEM LISTING - ENTER F OR C: ";ES
1230 IF ES="F" OR ES="f" THEN 1260
1240 IF ES="C" OR ES="c" THEN 1330
1250 GOTO 1210
1260 GOSUB 2450
1270 LPRINT "FULL FILE LISTING"
1280 GOSUB 2510
1290 FOR J=1 TO Q
1300 GOSUB 2540
1310 NEXT J
1320 GOTO 1380
1330 GOSUB 2450:LPRINT "CURRENT ITEM LISTING":GOSUB 2510
1340 FOR J=1 TO Q
1350 IF X#(J)>XD# THEN 1370
1360 GOSUB 2540
1370 NEXT J
1380 LPRINT CHR$(12)
1390 FOR J=1 TO (LOF(1)/128)
1400 LSET CD$=MKD$(X#(J))
1410 LSET DD$=MKD$(Y#(J))
1420 LSET IS=Z$(J)
1430 PUT #1,J
1440 NEXT J
1450 GOTO 140
1460 REM =====
1470 REM PRINTER ERROR
1480 CLS:PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT
1490 IF ERR=27 OR ERR=25 OR ERR=68 THEN PRINT "PRINTER ERROR" ELSE RESUME NEXT
1500 PR$="":PRINT :PRINT :INPUT "ENTER 'P' WHEN YOU HAVE RECTIFIED IT ";PR$
1510 IF PR$<>"P" THEN 1500
1520 RESUME
1530 REM
1540 REM =====
1550 REM END PROGRAM
1560 YN$="":CLS:PRINT :PRINT :INPUT "CONFIRM END PROGRAM ( Y OR N ) ";YN$
1570 IF YN$="Y" OR YN$="y" THEN 1600
1580 IF YN$="N" OR YN$="n" THEN 140
1590 GOTO 1560
1600 CLOSE
1610 KEY ON:PRINT :PRINT :PRINT "PROGRAM ENDED":PRINT :PRINT "ENTER 'SYSTEM' TO
RETURN TO DOS"
1620 PRINT :PRINT " OR"
1630 PRINT :PRINT "PRESS FUNCTION KEY F2 TO RUN AGAIN"
1640 END
1650 REM
1660 REM =====
1670 REM SUBROUTINES
1680 REM CURRENT DATE RE-ORDER
1690 AD$=MID$(D$,4,3)
1700 D$=LEFT$(D$,3)+RIGHT$(D$,4)
1710 D$=AD$+D$
1720 RETURN
1730 REM =====
1740 REM DATE CONVERSION TO VALUE
1750 VD1$=LEFT$(XD$,2)
1760 VD2$=MID$(XD$,4,2)
1770 VD3$=RIGHT$(XD$,2)
1780 VD$=VD3$+VD2$+VD1$
1790 VD$=VAL(VD$)
1800 RETURN
1810 REM =====
1820 REM VALIDATES DATE ENTRY
1830 IF DT$="" THEN 1950
1840 XD$=DT$:GOSUB 1740:DX#=VD#
1850 IF DX#<XD# THEN 1950
1860 IF LEN(DT$)<>8 THEN 1950
1870 IF VAL(LEFT$(DT$,2))>31 THEN 1950
1880 IF VAL(LEFT$(DT$,2))<0 THEN 1950
1890 IF VAL(MID$(DT$,4,2))>12 THEN 1950
1900 IF VAL(MID$(DT$,4,2))<0 THEN 1950
1910 IF VAL(RIGHT$(DT$,2))<VAL(RIGHT$(D$,2)) THEN 1950
1920 IF DT$=(LEFT$(D$,2)+"/"+MID$(D$,4,2)+"/"+RIGHT$(D$,2)) THEN 1950
1930 YN$="":PRINT :PRINT :INPUT "CONFIRM DUE DATE CORRECT ( Y OR N ) ";YN$
1940 IF YN$="Y" OR YN$="y" THEN RETURN
1950 TST=1:PRINT "INVALID DATE ENTRY":RETURN
1960 REM =====
1970 REM CALCULATES CALL UP DATE

```





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Perth (09) 386 8289  
Newcastle (049) 61 1090

Gosford (043) 24 2711  
Prices quoted may be subject to  
change without notice.



## IBM

File Listing. The Current Item Listing contains all records whose due date occurs within a fortnight. Generally, you will produce this report every day or two. The Full File Listing contains all records in the file, and is only occasionally needed.

There are four status messages which may appear depending upon how the relevant item's due date relates to the report's date at the top of the page. The messages are: OVERDUE, DUE TODAY, DUE TOMORROW, and CURRENT. The status reports are only accurate in relation to the report date. This is why it is important for your machine to have the correct date installed.

The Full File listing is the same format as the Current one, except there are no status messages for non-current items.

5...END PROGRAM — Simply closes the file and ends the program after you have confirmed the action.

Though the program stores the data in a file on disk, it sorts and prints it from arrays dimensioned in lines 80 and 90. In line 80 the variable TS has been set at 250 which means that, as written, the program can handle up to 250 records. This has been found to be a practical number.

However, the figure can be varied up or down to suit individual requirements and/or system capacity. The higher the number, the more memory you need and the longer the pre-print sort takes. So you don't really want to allocate more space than you need for day to day requirements. My 640Kbyte XT has handled a value for TS of up to 1500 satisfactorily.

The program contains several traps for errors and some of the more obvious possible input variations (for example, SAME=Same=same). However, the routine from line 2800 to the end of the listing (which is initiated in line 1200) is to catch an intermittent glitch in my system. If you don't want it, simply delete line 1200 and lines 2800 to 2860.

Tony Shrapnel,  
North Perth, WA

```

1980 ZY=VAL(VD3$):ZM=VAL(VD2$):ZD=VAL(VD1$)
1990 ZD=ZD-14
2000 IF ZD>0 THEN 2100
2010 ZM=ZM-1
2020 IF ZM<>2 THEN 2060
2030 IF ZY=88 OR ZY=92 OR ZY=96 THEN 2050
2040 ZD=ZD+28:GOTO 2100
2050 ZD=ZD+29:GOTO 2100
2060 IF ZM=4 OR ZM=6 OR ZM=9 OR ZM=11 THEN LET ZD=ZD+30:GOTO 2100
2070 IF ZM<>0 THEN 2090
2080 ZY=ZY-1:ZM=12
2090 ZD=ZD+31
2100 ZD3$=STR$(ZY):ZD2$=STR$(ZM):ZD1$=STR$(ZD)
2110 IF LEN(ZD3$)=2 THEN LET ZD3$="0"+STR$(ZY)
2120 IF LEN(ZD2$)=2 THEN LET ZD2$="0"+STR$(ZM)
2130 IF LEN(ZD1$)=2 THEN LET ZD1$="0"+STR$(ZD)
2140 ZD$=ZD3$+ZD2$+ZD1$
2150 VD2#=VAL(ZD$)
2160 RETURN
2170 REM =====
2180 REM CONVERSION OF VALUE TO DATE
2190 DV$=STR$(DV#)
2200 DV1$=LEFT$(DV$,3)
2210 DV2$=MID$(DV$,4,2)
2220 DV3$=RIGHT$(DV$,2)
2230 DV$=DV3$+"/"+DV2$+"/"+DV1$
2240 RETURN
2250 REM =====
2260 REM ENTERS AND VALIDATES RECORD NUMBER
2270 CLS:RN=0:PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "ENTER ITEM RECORD NUM3
ER.":PRINT
2280 INPUT "ENTER ZERO ONLY TO RETURN TO MENU : ",RN
2290 IF RN=0 THEN 140
2300 GET #1,RN:CLS:PRINT INFO$:PRINT LNE$:PRINT :PRINT "RECORD No. ";RN
2310 PRINT :PRINT :PRINT "ITEM DESCRIPTION: ";IS
2320 YN$="":PRINT :PRINT "IS THIS THE CORRECT ITEM DESCRIPTION ( Y OR N )
":YN$
2330 IF YN$="" THEN 2310
2340 IF YN$="Y" OR YN$="y" THEN RETURN
2350 IF YN$="N" OR YN$="n" THEN 2370
2360 GOTO 2310
2370 CLS:PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT :PRINT M$=""
2380 PRINT "YOUR RECORD NUMBER IS OUT OF DATE."
2390 PRINT :PRINT :PRINT "ENTER 'M' TO RETURN TO MAIN MENU,"
2400 PRINT "THEN GET FULL FILE PRINTOUT TO OBTAIN"
2410 INPUT "CORRECT RECORD NUMBERS ",M$
2420 IF M$="M" OR M$="m" THEN 140
2430 GOTO 2370
2440 REM =====
2450 REM PRINTOUT SUBROUTINES
2460 CLS:PRINT INFO$:PRINT LNE$:PRINT :PRINT :PRINT "***** PLEASE WAIT SOME MORE
*****"
2470 PRINT "          PRINTING IN PROGRESS"
2480 LPRINT "
***** DIARY *****":LPRINT:LPRINT
2490 LPRINT "REPORT DATE: ";DS:LPRINT
2500 RETURN
2510 HD$="REC.No.   CALL DATE.   DUE DATE.   ITEM DESCRIPTION           STAT
US"
2520 LPRINT HD$:LPRINT "-----"
2530 RETURN
2540 DV#=#X$(J):GOSUB 2180:X$(J)=DV$
2550 DV#=#Y$(J):GOSUB 2180:Y$(J)=DV$
2560 SS$="":IF X$(J)<=XD# THEN LET SS$="CURRENT"
2570 IF Y$(J)=XD#+1 THEN LET SS$="DUE TOMORROW"
2580 IF Y$(J)=XD# THEN LET SS$="DUE TODAY:"
2590 IF Y$(J)<XD# THEN LET SS$="OVERDUE:"
2600 PRTEST=31
2610 PRTEST=PRTEST-1
2620 PR$=LEFT$(Z$(J),PRTEST)
2630 IF RIGHT$(PR$,1)<>" " THEN 261C
2640 PRTEST1=31
2650 PRTEST1=PRTEST1-1
2660 PR1$=MID$(Z$(J),PRTEST+1,PRTEST1)
2670 IF RIGHT$(PR1$,1)<>" " THEN 2650
2680 PRTEST2=31
2690 PRTEST2=PRTEST2-1
2700 PR2$=MID$(Z$(J),PRTEST+PRTEST1+1,PRTEST2)
2710 IF RIGHT$(PR2$,1)<>" " THEN 2690
2720 PRTEST3=112-PRTEST-PRTEST1-PRTEST2
2730 PR3$=RIGHT$(Z$(J),PRTEST3)
2740 LPRINT J TAB(10) X$(J) TAB(22) Y$(J) TAB(35) PR$ TAB(67) SS$
2750 IF PR1$=SPACE$(30) THEN 2780 ELSE LPRINT TAB(35);PR1$
2760 IF PR2$=SPACE$(30) THEN 2780 ELSE LPRINT TAB(35);PR2$
2770 IF PR3$=SPACE$(22) THEN 2780 ELSE LPRINT TAB(35);PR3$
2780 LPRINT
2790 RETURN
2800 REM =====
2810 REM PRINTER ERROR TRAP (DEVICE TIMEOUT)
2820 IF ERR<>68 THEN ON ERROR GOTO 0
2830 BEEP:PRINT "PRINTER ERROR (DEVICE TIMEOUT)"
2840 INPUT "DO YOU WANT TO TRY AGAIN ";YN$
2850 IF YN$="Y" OR YN$="y" THEN LPRINT CHR$(12):RESUME 850
2860 RESUME 1540

```

# The Your Computer Magazine Bulletin Board

*What's on a Bulletin Board? How do I connect? Can I download programs? Will my computer talk to your Board? — these are but a few of the questions we're asked almost every day about the Board. The simplest answer anyone can give is — TRY IT!*

## THE YOUR COMPUTER BULLETIN BOARD SERVICE

### DOCUMENTATION

#### Introduction

The Your Computer Bulletin Board started life as the Mi Computer Club Bulletin Board early in 1982. The change of name has been accompanied by an upgrade in the hardware on the system and ongoing improvements with the software it is running. The Board now has a 20 Mbyte hard disk and can handle calls at 300, 1200 and 2400 bps and offers thousands of public domain programs for downloading.

The Board is a Remote CP/M system (RCPM). There are two main functional areas to the Board - the entry system and the Board message system itself. The entry system involves a login procedure that identifies a user to the system. If you are a first-time user, a small survey to fill out is required so we have some idea of your needs. The system will eventually place you in the CP/M operating environment. From here, to enter the actual message sub-system, you use the BOARD command at CP/M level.

Apart from files uploaded by Bulletin Board members (always appreciated), the programs available for downloading on the system include selected programs from Your Computer magazine, and over 50 Mbytes of public domain software. The catalogues of all this software are kept up-to-date on the system, and as many programs as possible will be available. Obviously, all of it can't fit on our disk at once, so we'll be rotating it in 10 Mbyte chunks. If there's something you'd like to get your hands on, let us know and we'll do our best to put it up there.

We've also placed the Your Computer annual index (the whole thing from the magazine's inception!) and the Your Computer new products' listings online.

#### Help

This documentation is a supplement to the HELP files on the Board. Most of the information you need to use the system is available either as messages displayed at the appropriate time on the system, or through a system of HELP files. To get a quick summary of the commands available at the CP/M prompt, just type 'HELP'. If you want help on a specific topic, you type 'HELP <helpfile>', where <helpfile> can be any of the following:

BOARD	JOIN	QUICK	CLUB	MODEM	SOFTWARE
HELP	PROGRAMS	THIS-SYS			

For example, if you want help on the software available on the system, type 'HELP SOFTWARE'.

Keep an eye out for additions to these HELP files. You can check what's available by getting a directory listing of them, using the command:

DIR \*.HLP

You may find it useful to send these files to your printer or catch them on disk when you list them, so you can examine them before exploring further on the system.

You can usually get more information at BOARD level just by typing 'HELP' or a question mark.

#### Logging On

The Board phone number is (02) 669 1386. The system communicates in the following format:

- 300, 1200 or 2400 bps
- 8 data bits
- 1 stop bit
- No parity
- Full duplex

When you ring up, the system automatically determines at what speed your modem is operating. You'll then be asked how many nulls you require - in most cases the answer is 0. If you find you're losing characters from the beginning of lines, try a number between 0 and 9 next time you log on (you can't change the number of nulls during a session, so you'll just have to experiment).

Once in, you'll be asked your name, and then you'll be logged to disk. Make sure you always enter your name in the same way (although it can be in any mixture of upper and lower case), or you'll have to go through the new user procedure and won't be recognised as a Board member.

The latest information about the system is available before you enter CP/M.

#### CP/M

A modified version of CP/M is used as the operating system on the Board. If you're unfamiliar with CP/M, you can use the HELP files to find your way around, and the descriptions of the commands below.

For regular users of CP/M, you'll find some commands aren't available, some work differently from usual, and there are some additional commands, so you'll also benefit from reading the documentation and HELP files.

#### CP/M Commands

**BOARD**  
The BOARD command takes you from CP/M into the Bulletin Board sub-system itself. This is where most of the action happens: you can place and read ads, messages and mail, and access the hundreds of programs available for downloading. We'll have a look at all the Board-level commands in a separate section.

Before gaining access to the Board, you'll be prompted for your ID Code. This is your Board membership number (supplied to you when you join) followed by a hyphen and your six-character password. When you first join, you are given a default password consisting of the first six letters of your last name (in UPPER CASE). For example, if your member number is 2980 and your name is Margaret Jamieson, you type the following at the prompt:

2980-JAMIES  
If your last name is shorter than six characters, just use your whole last name as the password.

You should change your password as soon as you get on to the Board, so it's harder for others to discover it. You can change your password as often as you like to any six-character combination, but do make sure you remember it or you won't be able to get onto the Board. If you forget your password and are really stumped, you can ring up the SYSOP (System Operator) - Your Computer (or leave a message by the MINIRBBS system - although messages left this way may take a long time to filter through to the SYSOP, depending on how many other jobs are on).

If you've already been on the Board during a session and have then exited to CP/M (maybe to view the programs), you can take shortcut back onto the Board by using the command BOARD REENTE

#### BYE

To get off the Bulletin Board, use the BYE command. You can, of course, just hang up on us, but this ties up the phone for a while, and doesn't win the heart of the SYSOP. Using BYE will disconnect you neatly, and also gives you a chance to leave messages for the operator during the exit procedure.

#### CHAT

CHAT lets you have a conversation via the screen with the Board's system console. If the SYSOP is around and not busy he'll respond, and you'll then be able to type messages to other.

Unfortunately, the SYSOP is not often available for chatti he's usually doing other jobs. But it's always worth a tr



# Your Computer Bulletin Board

All you need is a computer that can handle ASCII standard characters, a modem (see our October '86 issue for information on modems), and a communications program (which you can probably download from the Board) — and you're ready to go.

## The Board Message Sub-system

When you issue the BOARD command at CP/M level and enter your ID, you are placed in the message sub-system. Type ? to get a list of all the commands available at this level. Some of them are the same as the CP/M commands: NEW, INDEX, and PRODUCTS. Here's a brief rundown of the other commands available.

**MENU**  
MENU will place you in a menu-driven system which makes it easy to use many of the Board commands.

**CPM**  
This returns you to CP/M. Use the BOARD REENTER command to get back into the message system quickly.

**FIND**  
This FIND is different from the CP/M version. You use it to find the membership numbers of other members, so you can send them mail. You'll be asked the first and last names of the person you wish to find, and the program will produce a list of matching names. People who haven't changed their original default password will not be displayed.

**LOGOFF**  
This takes you completely off the system, automatically running the BYE program, so you can leave a comment if you wish.

**PASSWORD**  
Use this command to change your password. Make sure you change the default password we've given you as soon as possible. After that, you can change your password whenever you like.

**BACK**  
BACK will run the program you've most recently exited. For example, if you've been using the MENU system and have returned to the Board's prompt, BACK will place you back into the MENU.

**EXP**  
This switches you between normal and expert modes. Expert mode gives you a less informative prompt.

**PROGRAMS**  
This is the gateway to the majority of the programs available for downloading on the system. The PROGRAMS command deposits you in CP/M in user area 3B; you'll also find files on drive C:. From

here you can use all the CP/M commands to see what's available and to download anything you find attractive.

In addition to the above commands, you can place, view and delete advertisements, notices, meetings and mail through the Board system. You can use the commands provided in the table (such as PADV and DMEET), or you can use the various menus, which let you do all the same stuff without having to remember the commands.

## Your Responsibilities

Most people use the Bulletin Board because it's fun and valuable and expands the scope of the humble home micro. Some get on the system and try to create havoc, either by attempting to damage the system, by being offensive or by doing otherwise illegal or immoral things.

The SYSOP has a complete record of everyone's activities on the system, and anyone who abuses it will be excluded very quickly. They'll also have their name passed on to the other SYSOPs around the country.

For responsible users:

\* make sure you protect your password - so no-one can cause trouble in your name.

\* keep the message area clean. When you've finished with mail, delete it; if you've placed a message or ad and it's now out of date, delete it or update it.

\* let the SYSOP know - by Bulletin Board mail, a comment at the BYE command, or a phone call to the office - whether something's not working properly or you'd like to see some change to the system. If your need is urgent, phone calls to the Your Computer office are usually the best way of getting our attention.

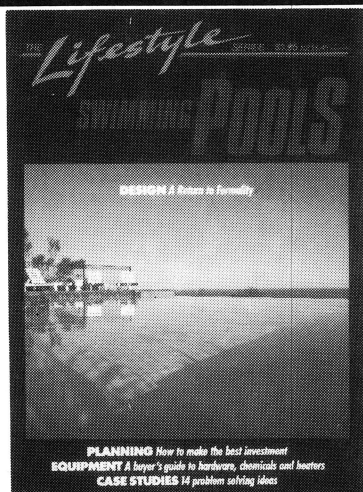
\* read the documentation on the system itself (in the .HLP files). There's a lot more information up there than there is in this document, and if you want to get the most from the system, it really is worth reading. It's a waste of time for the SYSOP if you ask questions already answered on the system.

At our end, we've already instituted procedures to keep the information on the system up to date and interesting.

Hope you have a good time on the Board.

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## STATIC RUINS DATA...

Whatever you do, don't touch an ordinary floppy disk.

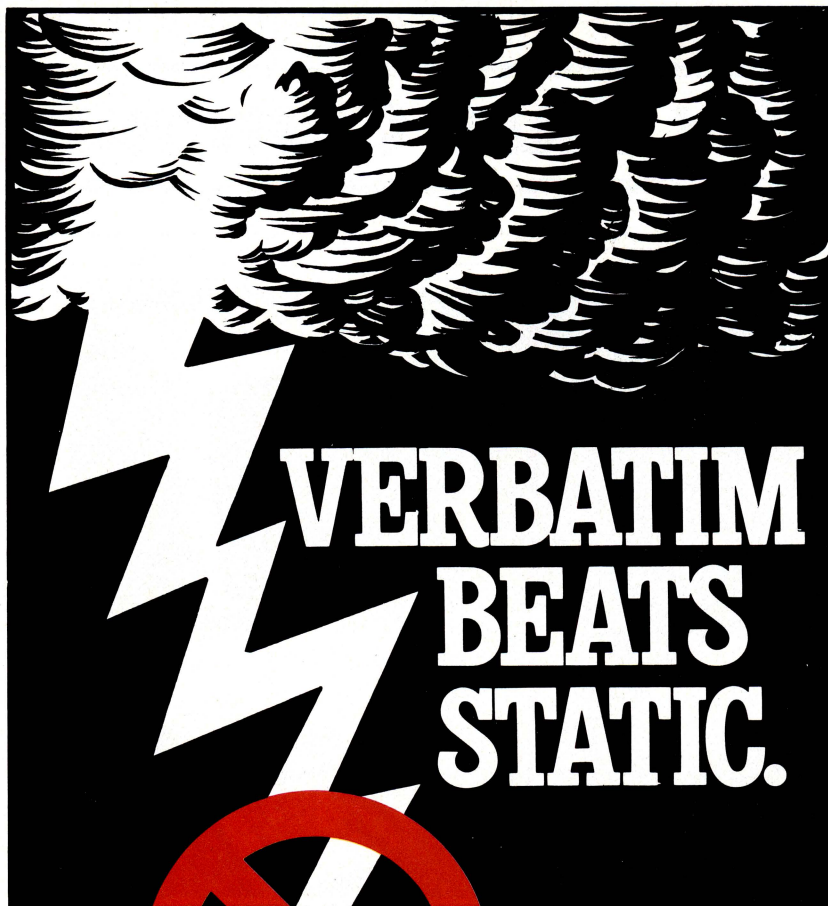
The static charge can penetrate the liner and cause irretrievable loss of your data.

The static problem with floppy disks isn't limited to the sparks you can see and feel.

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There is now *one* floppy disk which guarantees to stop static-caused data loss.

Verbatim DataLife disks now have a patented liner called DataHold, which disperses static



charges before they have the chance to reach your valuable data.

These are the disks that are also certified 100% error free, and guaranteed to store and retrieve your data for at least a human lifetime.

If you don't want any static, there's only *one* floppy disk brand to choose.



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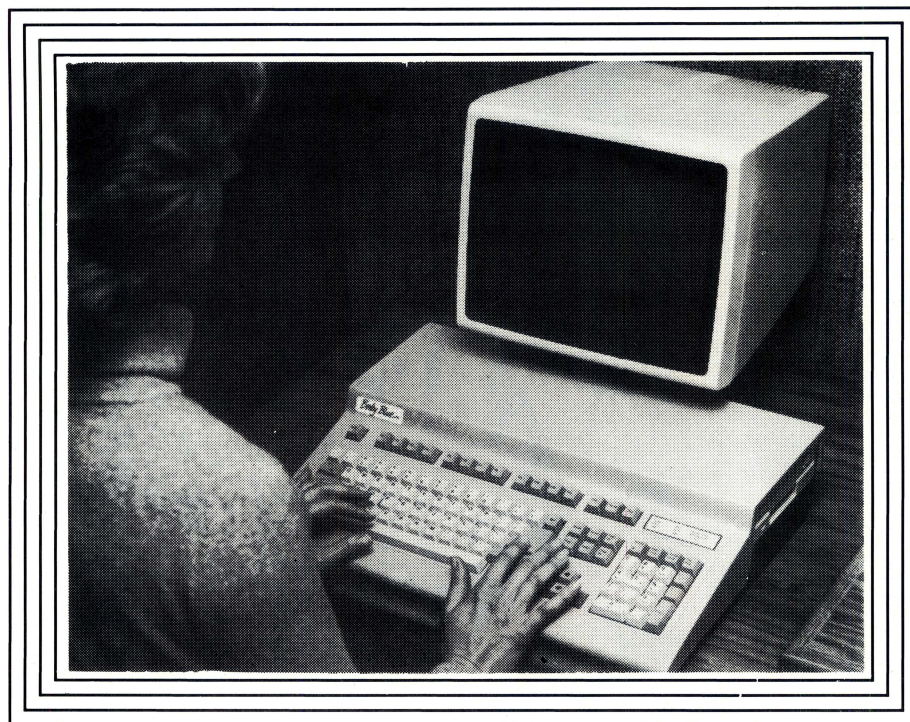
Now available from: **NEW SOUTH WALES:** Computer Resources Co. (02) 516 4099. Computer Supplies (Aust.) Pty. Ltd. (02) 439 5533. N.T.T. Supplies (Australia) (02) 357 5522. Twinlock Acco (02) 698 7288. **CANBERRA:** Computer Resources Co. (062) 80 6748. **VICTORIA:** Barries Office Supplies (03) 329 6500. Computer Resources Company (03) 543 5633. Computer Supplies (Aust.) Pty. Ltd. (03) 241 1071. Dataparts Pty. Ltd. (058) 21 7155. Twinlock Acco (03) 544 4000. **QUEENSLAND:** Computer Resources Company (07) 393 0288. Graphic Data Pty. Ltd. (07) 852 1877. N.T.T. Supplies (Australia) (07) 52 7333. Twinlock Acco (07) 52 4806. **SOUTH AUSTRALIA:** Computer Resources Company (08) 363 1133. Excel Computer Supplies Pty. Ltd. (08) 363 0466. Qualitron Pty. Ltd. (08) 276 2566. **WESTERN AUSTRALIA:** Computer Resources Company (09) 381 9588. EDP Supply Company (09) 322 4699. Office Products International (W.A.) Pty. Ltd. (09) 361 7422.



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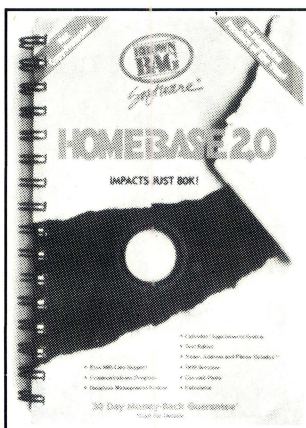
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# Your Computer Bulletin Board

On these pages we've given a sampling (a very small sampling) of what you'll find on our Board. In this sample are the answers to the most common of the questions we're asked about the Board. If this (and the HELP files) on the system still leave you with unanswered queries, leave a message for the Sysop, Andy Farkas, by using the BYE command and he'll reply via the Board. Of course Visitors are welcome to have a look (and leave messages) — the number's (02) 669 1385. If you'd like to become a resident, see page 162.

**DIR**  
Most of you will be familiar with this command. DIR is short for 'directory', and it provides you with a list of files in the current user area and drive. You can use it without any arguments to get a listing of all the files in the area, or you can use references to unambiguous file names (UFNs) or ambiguous file names (AFNs).

A UFN is a name like FRED.BAS (and DIR FRED.BAS will merely confirm whether the file is in the area or not). A UFN can consist of any character permitted in a file name plus the \* and ? characters. \* stands for any character or series of characters, while each ? in a file specification refers to any single character. For example:

DIR FRE?.BAS

will find any file name with the extension .BAS, and starting with FRE followed by a single character, such as FREE.BAS or FRED.BAS.

DIR FRE\*.BAS  
will find FREE.BAS, FRED.BAS and any names starting with FRE with any series of letters following, such as FREEDOM.BAS and FREDDY.BAS.

If you're searching the programs area and want to find all the Microbee programs, you can use the command: DIR \*.BEE

DIR \$L will list the contents of library files. Library files contain sets of related files, which have been placed in a the library format to save space. All libraries have an .LBR extension, and using DIR \$L will give you normal directory plus displaying the contents of any libraries.

**FIND**  
Don't confuse this with the Board-level command also called FIND (which searches for Board members). This will find a specific string in a file or list of files. For example, if you want to find which BASIC files in the program area (3B) contain the word 'GAME', you can use this command at the prompt:

3B> FIND \*.BAS GAME

**FOR and NEW**

These commands are generally used together. The NEW command gives you a list of files which have been recently uploaded to the system. The FOR command provides a brief explanation of what each program does. You can either use the command by itself, to get a description of each of the new files, or you can use it with ambiguous or unambiguous file name specifications.

**HELP**  
Have a look at the earlier section for information on the HELP command. You'll also find a file on the system called HELP.HLP, which provides more details.

**INDEX**

The INDEX program gives you access to an index of all articles appearing in Your Computer magazine since it started in 1981. This index will be updated every couple of months.

The INDEX program lets you search the index in four categories: story title, author name, machine and program name. Once you've chosen the search category, you're prompted to enter a keyword. You can make this as specific or general as you like. For example, you could select the title category, and look for titles which contain both the word 'database' and the word 'great'. (It doesn't matter whether you use upper or lower case in the searches.)

(N)arrow, (E)xpand, (S)can, (R)ead, (F)inished?

To display the matching articles, use the Scan or Read commands (Read gives a little more detail than Scan). The Narrow command lets you narrow the scope of the search by ADDING to the original keyword. Say you've found 50 articles with 'database' in the title, but you're only interested in articles in the 'Great Database Search' series. You can select the Narrow option, and type the word GREAT at the prompt. The program will then search for titles which contain both the word 'database' and the word 'great'. (It doesn't matter whether you use upper or lower case in the searches.)

The Expand command will merely take the search back to the previous level of searching, so in the above case, it'd produce a list of the 50 articles which contain the word 'database'.

The Finished command will get you back to the initial Index searching menu.

You can also type ? to get a brief explanation of the commands when using the program.

**KMD**  
KMD is the communications program used on the system. You use it to copy files to and from your system and ours.

It offers 1 Kbyte block size transfers as an option (works with YAM4, Pro-YAM and IMP2) and will also transfer individual files from a library. It doesn't support batch mode (yet). KMD uses the Ward Christensen MODEM7 protocols for binary file transfers, and will do binary file transfers with any other program using the same protocols. (Check the MODEM.HLP file for more details.)

To copy a file (say DUMMY.ASM) to your system where you're using MODEM7, YAM, RCPMLINK or a similar communications program, tell CP/M to send the file with:

KMD S DUMMY.ASM

Then put your communications program into the receive mode with:

R DUMMY.ASM

You can't copy .COM files; those that you can are called .OBJ, and if you upload a .COM file to the Bulletin Board it will be renamed with the .OBJ extension.

**LTYPE**

LTYPE displays the contents of library files (see the DIR command for more details on libraries). The syntax is:

LTYPE <library name> <member name>

The member name requires an extension, but you shouldn't include the .LBR extension in the library name. For example, to type the file JANET.DOC in the library NETWORK.LBR, you use the following command:

LTYPE NETWORK JANET.DOC

**MINIRBBS**

This command provides access to a cut-down version of the Board message system. It's mainly there so visitors (non-members) can send messages to the SYSOP and others. Just type ? to get an explanation of the commands available.

All messages on the MINIRBBS are public unless password protected.

**PRODUCTS**

Your Computer magazine publishes a list of interesting new products each month. The PRODUCTS program lets you check this latest news online.

The program gives you a choice of seven categories: software, new machines, peripherals/extensions, services, furniture, miscellaneous and all categories. Within these categories, you can search on product name or company name.

The commands used for searching are the same as in the INDEX program, so have a look at that section to get more details.

**TYPE**

The TYPE commands lets you display the contents of files. The version we use has several enhancements over the standard CP/M TYPE. It'll accept wildcard file names (that is, ambiguous file names) and display multiple files.

Here are some examples:

TYPE PLANET.BAS

TYPE PLANET.BAS 35

TYPE PLANET.BAS #

TYPE PLANET.BAS INIT\*

The first will list the complete file PLANET.BAS; the second starts at line 35; the third counts the number of lines in the



# NEW PRODUCTS

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Phone: (07) 358 4800

Price: not supplied

Business Model Systems (BMS), an Australian based software developer specialising in 'financial modeling' packages, has just announced the release of a new version of Business Modeller. The new version is specifically designed for users of the Wang VS minicomputers and complements other compatible versions available for PC's and other brands of minis and mainframes. The package provides a single solution to spreadsheet needs in a multi-user environment and through power and flexibility, it also provides a growth path.

### **Accounting Software**

*Personal Computer Software*

Phone: (02) 923 2899

Price: \$299 to \$599

Personal Computer Software have announced the release of new accounting software from Sage which forms part of the Sage 'Business Wise' range for IBM compatible Personal Computers. There are three levels in the range — the 'Bookkeeper' is designed for small business bookkeeping and accounting, — the 'Accountant' and the 'Accountant Plus' are designed to be used on a much larger scale. The software also features a 'Quick Ratio' report to determine a company's liquidity at any time.

### **286 Xenix System V**

*Blue Sky Industries*

Phone: (02) 419 5799

Price: Ask

Version 2.2 for the Xenix 286 has hit the streets. The package, designed by Santa Cruz Operation (California) is the update on the Xenix 286 release 2.1.3 for multi-user micros. A 2.2 release for the 80386 will be available later in the year.

### **Costcon for Construction**

*TPM Construction*

Phone: (02) 632 4349

Price: not supplied

The construction industry is taking high-tech to heart with the selection of project management packages, increasing all the time,

they can afford to pick and choose. One of the latest is from TPM Construction, a NSW based company. Their latest release, the Costcon has some interesting features. The package covers final project cost projection, cash flow projections, administration of budget, orders, sub contractor's payments, client reporting, justification of progress claims and memo writing facilities. The nicest thing about Costcon is that it is totally menu driven. The product is really True Blue as it was totally developed here and runs on IBM and many compatibles. It needs to have a 640 Kbyte RAM, 10 Mbyte hard disk and a colour screen.

### **Advanced BECSP**

*GFS Electronic Imports*

Phone: (03) 873 3777

Price: not supplied

GFS Electronic Imports have what they hope will be a windfall for their CPU-100 Intelligent Radio Data Modem with the development of the Advanced BECSP software. The software enhances the CPU-100 modem by increasing data throughput during periods of adverse radio path conditions while also enhancing its ability to minimise errors and adaptively minimise block or packet size to suit buffered data. The radio modem appears best suited to long distance work encountered in the outback where lines are not always available.

### **AutoPlan**

*Kaye and Associates*

Phone: (07) 839 6333

Price: \$30,000

AutoCAD has found another ally in the form of Queensland's Brian Hunter, a draughtsman who has enhanced the package and made an breakthrough in response times and capability for PC-supported CAD systems. Certain draughting limitations on AutoCAD such as its not being able to draw multiple lines or edit corners, have now been solved by modifications. Additional features include the full list of BHP steel specifications to assist draughtsmen working on steel-fabricated buildings. That includes iron lace and timber scrolls to be used in drawings of buildings done in the traditional

Queensland style. AutoPlan draws to full scale and allows users to select a print-out scale or to use a video monitor to zoom in on any fine detail. Updates are already on the way with the inclusion of true-perspective drawings of any attitude due in July.

### **Data Processing Package**

*Pannell Kerr Forster*

Phone: (08) 223 5711

Price: \$6000

Chartered accounting firm Pannell Kerr Forster, has developed the Insolvency Data Processing System (IDPS). This system has been designed to streamline the

luckiest with. It could also be a fun game for the family.

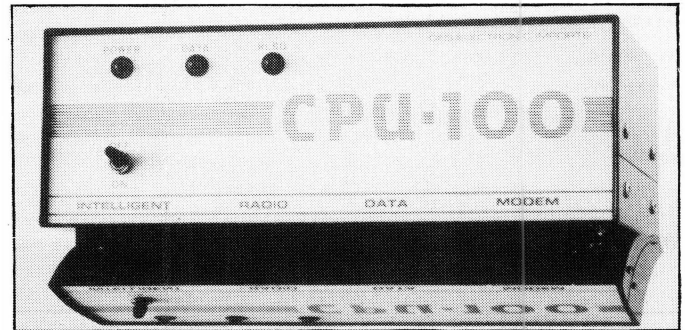
### **Ostrich**

*Co-Cam Computer Services*

Phone: (03) 420 5400

Price: not supplied

Here is something for accountants or business in general — the Ostrich investment management accounting and information system, developed by Co-Cam, offers a computer-tooled way of doing double entry accounting. The package runs on most personal computers as well as Hewlett-Packard minicomputers. With changes in budgets and currency fluctuations affecting



administration and maintenance of insolvency accounts and overcome the paper war associated with large scale management. The software package is a data management system which can be used to process and update the claims of creditors, the status of debtors and the registration of lodgements and returns while aiding in the calculation of dividends during administration of accounts.

### **LottoCheck**

*Solid Software*

Phone: (03) 754 4377

Price: \$49.50 taxed

With a mathematician claiming he can make a 25 per cent profit on Lotto using a computer, there could be a healthy return for users of LottoCheck, designed for the Commodore 64 and 128. The software comprises a database of the past six years of NSW Go Lotto draws which are drawn upon to give you a reading on how well you would have gone compared to past performance. Various options are given to print, evaluate and graph whatever set of numbers you feel

exporting. Features such as a Capital Gains Tax and Foreign Currency Accounting tools will allow you some chance to keep abreast of hidden taxes and up with changes in export markets. The package appears to be very professional, keeping up to date with daily information on accrued Capital Gains while taking into account estimates of CPI in accounting taxation liabilities on sales. Trusts are catered for with costs and gains computed automatically.

### **Small Business Disk-IT**

*NITC*

Phone: (062) 64 4764

Price: \$10

The National Information Technology Council has combined with the West Australian College of TAFE to provide businessmen with a 'How To' package on running your own small business. The program gives the user an understanding of prerequisites involved in starting up and operating a business. NITC is set up to create an awareness of Australian high-tech products.

# NEW PRODUCTS

## The Colonial Census Database

Mitchell CAE

Price: \$12.00

With the geneology bug biting deep into the hearts of Australians, this software package developed by the History School of Communications and Liberal Studies at Mitchell CAE could prove interesting for family and amateur historians. Based on Bathurst figures in the 1828 Census of NSW, the database provides information on 14 fields covering over 1000 people living in Bathurst at the time. There is an option to create your own 1828 database and the package includes a set of instruction cards and an 87 page handbook containing background history on the 1828 Census. The program can be run on a 64 Kbyte Apple II with a 5.25 inch drive.

## The Perfect Office

Mini Computer Systems Pty Ltd

Phone: (03) 528 2711

Price: not supplied

In an attempt to create the perfect office, a Melbourne based company, Mini Computer Systems, is offering wordprocessing software and equipment which is designed to enhance efficiency and preserve (in some cases create continuity) for those small to medium offices. Central to the package WordPerfect which has been mated with Data General computers. From 3 to 20 outlets are provided and training is taken care of with the provision of an easy to understand video.

the large combersome design of older style keyboards and provides a comfortable keyboard strike angle.

## The Dataflex Range

Sylex Ergonomics

Phone: (02) 647 2888

Price: ask

Like most furniture houses, Sylex has come out with its own range of computer-designed furniture with ergonomics in mind. Their desk-top workstations come standard with height and tilt adjustable keyboard section and the option of fold down work surfaces to the left and right. There are additional printer stands which incorporate a re-fold paper system which takes the paper from a middle shelf to the printer and back down to a lower sliding shelf. This allows the table to be put against the wall as there is no basket in the way. ▼

## New Machines

### IBM AT and Compatible Memory/Multifunction Card

Pantek Australia

Phone: (03) 836 9633

Price: \$600

Pantek Australia announces the release of a memory/multifunction card for the IBM AT and close compatibles. The multifunction card provides for memory expansion to 3 Mbytes and also comes with a RS 232 serial port (a second serial port is available as an option), a parallel port and games port. The memory expansion facility is via sockets for simple 'plugging-in' and allows the user to incorporate 64 Kbyte or 256 Kbyte DRAM chips to build the desired

memory size which operates as true 16-bit architecture.

### Applix 1616

APPLIX

Phone: (02) 758 2688

Price: not supplied

The February issue of Electronics Today International features a 16 bit computer. According to the magazine's editor, Jon Fairall, it is the most advanced kit computer published anywhere in the world. Designed by Bob Morton, it is based around Motorola's 68000 chip and features 512 Kbyte of dynamic RAM, expandable to 4.5 Mbytes on the board, and 128 Kbyte of ROM. It is designed with graphics in mind and supports a high resolution 16 colour screen. It uses GEM, a windows based operating system which makes good use of the graphics. The computer comes with four, 40-pin expansion slots, dual RS 232 port with programmable baud rates up to 1 Mbyte, centronics port and a general purpose analogue and digital port. See the March '87 issue of ETI for more.

### Personal Computers

Sun Computers Australia

Phone: (02) 957 2655

Price: not supplied

The Sun Integrated Personal Computer (SunIPC) and the PC-NFS are two newly released products from Sun Computer Australia. They aim to bridge the gap between IBM Personal Computers and software and Sun's workstations and networks. SunIPC is a high-performance 10MHz 80286 coprocessor board that provides compatibility with the IBM PC/AT allowing Sun workstations to run MS-DOS applications in a window under Unix. The PC-NFS is software for IBMs and allows them to transparently access files and network peripherals.

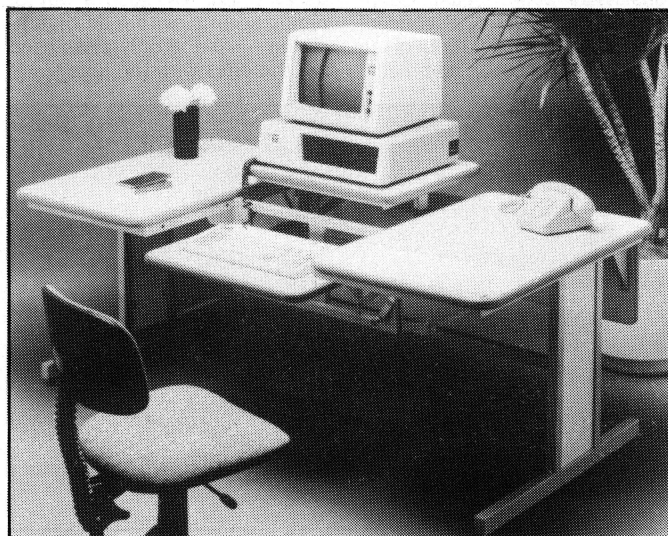
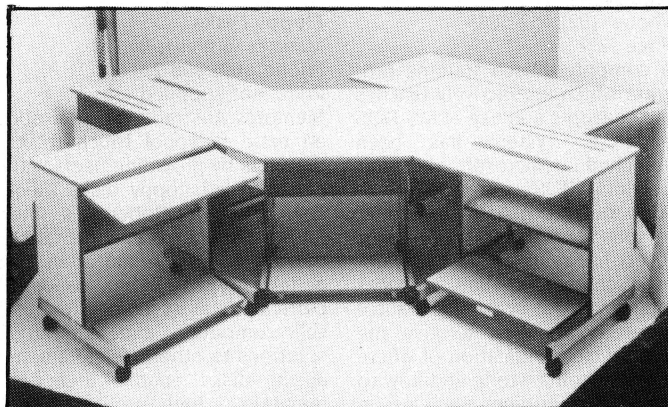
### Psion Organiser II

RCS Design

Phone: (03) 49 6404

Price: See below

Imagine that you will only need your briefcase to carry your lunch, and wrist watches will become a thing of the past. The imagination can run wild but the Organiser II looks set to replace diaries, address books, calendars while also giving the time and alarms and providing up to 304



## Furniture

### Height Adjustable Workstations ►

Sylex Ergonomics

Phone: (02) 647 2888

Price: not supplied

Sylex are continuing to deluge the marketplace with more variety of ergonomic furniture for computer set ups, with some of the latest designs being released in their HM range. The series of workstations were designed for computer users whose main task revolves around a computer screen and keyboard, yet still require workspace for clerical and other office work. The tilt adjustable keyboard helps to overcome



Kbytes of memory for programming or storing facts and figures. It has a database and file management functions and the hand held pocket sized calculator can plug into the office system. For people looking for extras they include Eprom datapaks program packs for finance maths and concise Oxford spelling checker mains adaptor RS-232 link for asynchronous communication to desk top PC's, mini computers and modems and professional packs such as bar code reader, magnetic card reader and a bulk datapak copier and eraser. The 32 Kbyte ROM and 8 Kbyte RAM retails at \$630 while the 16RAM retails at \$695. The Datapaks vary from \$84.50 to \$585. (See our news pages for a users application). □

## Peripherals and Extensions

### Brother M1709, M1109 AP, HR20

Brother Industries

Phone: (02) 887 4344

Price: See below

If you are thinking of updating your printer or of buying one for your system, Brother are proving that variety is the spice of life with a choice of three new printers. The Brother M1709 is a dot matrix printer with a high speed output of 240 characters per second in elite and 50 cps near letter quality. It is compatible with IBM and Epson and has a 24 Kbyte buffer memory. Retail price \$1,299. The Brother M1109 AP is a light, compact Apple compatible matrix printer with 75 cps in draught mode and 19 cps in near letter quality although it is definitely not as good as the M1709 at a retail price of \$649. The HR20 is the middle of the road of the three and retailing at \$999. It is a daisy wheel printer which affords very high quality results. The HR20 is a refined version of the HR15XL but the printer speed has been improved to 21 cps, noise has been reduced, and the printing width expanded to 117 columns. It also features two-colour and simplified copy printing. ►

## Services

### Data Security

SYTEK Australia Pty Ltd

Phone: (02) 957 2655

Price: not supplied

Sytek Australia has introduced a new data encryption LAN system, called Secure 2000. It is the only cryptosystem integrated into a commercial local area network: Sytek's System 2000 terminal-to-host LAN. It offers a unique security solution for government agencies, defense contractors, universities, health care facilities, corporations and other organisations that have sensitive or proprietary information to protect. Secure 2000 has price and performance benefits over other security products now available.

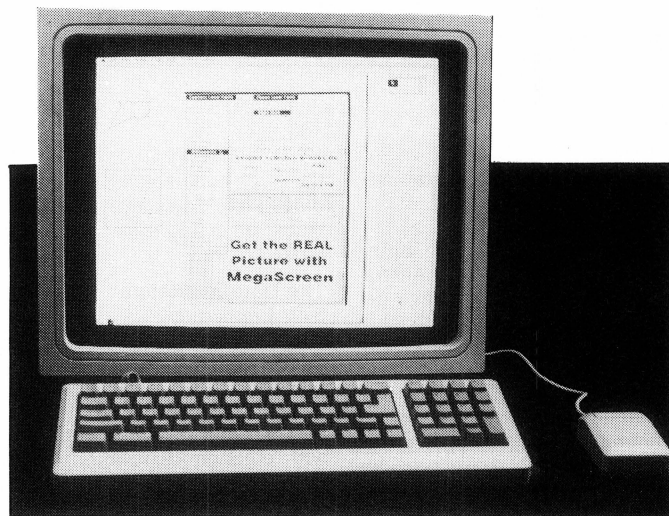
### MS-DOS Training

Microsoft

Phone: (02) 452 5088

Price: ????

A computer-based training program which interactively teaches the concepts and use of MS-DOS operating system has been launched by Microsoft. Microsoft Learning DOS contains 24 lessons for hard disk users and 17 lessons for learning on floppies. A very handy feature of the training scheme is that mistakes logged by the system are automatically analysed to give the pupil a clear indication of where they are going wrong and how to correct the problem. Each lesson consists of plain-English explanations of an MS-DOS concept or command explanation of an MS-DOS concept or command,



together with a summary of the lesson. Lessons are accessed from a flexible menu system and can be tackled in any order.

## Miscellaneous

### Floppy Disks

Memorex Australia Pty Ltd

Phone: (02) 908 2211

Price: not supplied

Memorex Australia can now add an extra personal touch to its products by providing users with personalised floppy disks. General manager, Robert Ek, has found that the companies using the privately packaged disks are delighted with the concept, particularly as some of them resell computers and computer solutions to other users. Personalised disks enable them to maintain a high profile in the user's mind. It is also a way of aiding security within an organisation — as the only disks used are the ones with the logo.

### MegaScreen ▲

Apple PICA

Phone: (03) 370 3566

Price: \$6,360

Macintosh users may certainly be hitting the big screen in future with the release of the MegaScreen. (We always new Macintosh users liked their name in lights but to hit the big screen has come as a surprise). Some of the feature of the MegaScreen include a 49 cm screen with 1024 by 900 pixel monochrome display, a user definable interface mode, alternate signals and video parameters for NITC or PAL output to VCR's, other external monitors and projectors, inverse mode for white on black images, software selectable switching between MegaScreen monitor and the Macintosh screen and an additional power supply.

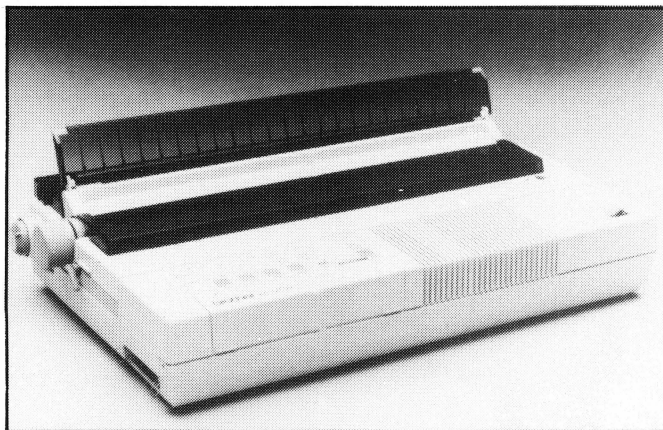
### A Key Board

Electronic Solutions

Phone: (02) 427 4422

Price: ring them

Don't throw that keyboard out the window, sell it and look at getting one of the latest designs. For IBM users there is the Electronic Solutions solution to your problems with new concepts in keyboards for the PC and AT. A switch on the rear allows you to change from one mode to the other. All keys follow the AT layout with the oversized <shift> and large <enter> keys. There are also indicators for the caps lock, num lock and scroll lock. Gone are the rhythmic click and clack of the old PC board and the cable connector is fully IBM compatible with a generous end-to-end length of 8.5 feet. Scrolling speed has also been improved over the PC keyboard.





**DUAL SPEED  
NOW AVAILABLE!!**

**MADE IN U.S.A.  
12 MONTH WARRANTY**

# KAYPRO introduces NON-OBSOLESCENCE

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That's easy. Replace the existing IBM PC/XT board with an IBM PC AT-compatible board, available now; IBM 32-bit standard, available soon; or whatever the future holds.

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Simply exchange the existing multifunction board 768 K standard for any configuration of memory, I/O, and controller boards.

## HIGH-RESOLUTION GRAPHICS?

KAYPRO's standard multivideo board features perfect monochrome clarity plus high-resolution color (IBM CGA). But, if it's IBM EGA that you want? — simply snap in a board.

## FURTHER SYSTEM EXPANSION?

But of course! The KAYPRO PC is ready for anything. With six available slots, add what you need — networking, modems, more memory — the sky's the limit.

## PLENTY OF STANDARD FEATURES?

### DUAL SPEED:

Go from 4.77 8MHz with just a flick of a switch

### POWER SUPPLY:

A generous 132 watts of power for even the most demanding hard drive.

### FLOPPY DISK DRIVES:

Dual IBM-compatible floppy disk drives standard or slide in the drive of your choice.

### HARD DRIVE EXPANSION:

Space provided for easy addition of internal hard drives.

### BUNDLED SOFTWARE:

A full selection of business software for today and tomorrow.

### KEYBOARD:

Detachable, IBM PC AT-style keyboard with security keylock.



**Kaypro's new "Snap-In" technology lets you exchange or update all vital system components in seconds.**

**C**omputer technology changes with lightning speed. In the time it takes to read this, there will be dozens of new products on the market that make their predecessors obsolete. With that in mind, we'd like to give you a bit of good news. The fully IBM PC/XT compatible KAYPRO PC has been designed to eliminate computer obsolescence. That means it's a snap to update all vital system components — right down to the system's microprocessor.

**PRICE: \$2495 \*\***  
**\$3295 \*\* (20 MEG)**

**20 MEG DOES NOT INCLUDE  
A COLOUR BOARD \*\*Suggested Retail**

And, if it's topnotch features you want, look no further. The KAYPRO PC delivers: IBM PC AT-style keyboard, two disk drives, dual speed board, built-in color capability, and 768K of standard RAM. The culmination of Kaypro's 33 years of electronics engineering innovation, the American-made KAYPRO PC just may be the last computer you'll ever need.

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# DISCWARE

## the best amongst the best

### KAYPRO PC

#### the non-obsolence PC

##### NEXT YEAR'S TECHNOLOGY?

That's easy. Replace the existing IBM PC/XT board with an IBM PC AT compatible board, available now. IBM 32 bit standard, available soon, or whatever the future holds.

##### MEMORY-HUNGRY SOFTWARE?

The Discware Kaypro comes standard with 768 KB — and if that's not enough, plug in an Above Memory board of your choice.

##### HIGH-RESOLUTION GRAPHICS?

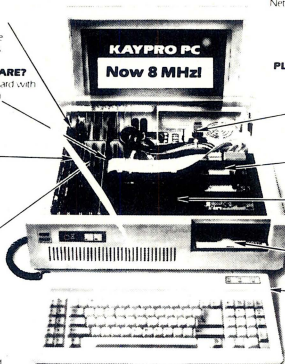
KAYPRO's standard multivideo board features perfect monochrome clarity plus high resolution colour (IBM CGA). But, if it's IBM EGA that you want? — simply snap in a board.

##### FURTHER SYSTEM EXPANSION?

But of course! The KAYPRO PC is ready for anything. With six available slots, add what you need — networking, modems, more memory — the sky's the limit.

##### MONITOR

A large range of monochrome and colour monitors available.



##### NOVELL ADVANCED NETWORK

Network your Kaypros with Novell's Advanced Netware™. Let us design a network application for your business needs.

##### PLENTY OF STANDARD FEATURES?

##### POWER SUPPLY:

A generous 132 watts of power for even the most demanding hard drive.

##### FLOPPY DISK DRIVES:

Dual IBM compatible floppy disk drives standard or side in the drive of your choice.

##### HARD DRIVE EXPANSION:

Space provided for easy additions of internal hard drives.

##### BUNDLED SOFTWARE:

A full selection of business software for today and tomorrow.

##### KEYBOARD:

Detachable IBM PC AT style keyboard with security keylock.

### The Discware Guarantee

**Not only does the Kaypro PC carry 12 month warranty, but, Discware offers an unprecedented support plan.**

**Should your Kaypro PC malfunction during the warranty period we will either replace or repair the faulty computer on the spot. And we provide hot line support free of charge.**

### TOSHIBA T3100

#### the AT for those on the go



CPU: 8 MHz 80286.  
RAM: 640 KB expandable internally to 2.5 MB.  
ROM: IBM AT compatible.  
DISK STORAGE: 720 KB 3.5" floppy disk drive, one 10 MB hard disk, connection for external 1.2 MB/360 KB 5.25" floppy disk drive.  
EXPANSION: Internal expansion slot.  
INPUT/OUTPUT: Serial and parallel ports.

### KAYPRO 286i

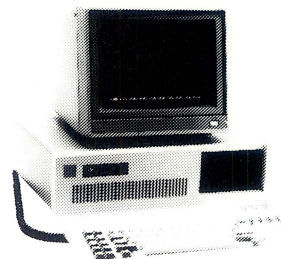
#### the world's first AT compatible



CPU: 8.0 MHz 80286.  
RAM: 640 KB expandable to 15 MB.  
ROM: IBM AT compatible.  
DISK STORAGE: 1.2 MB floppy disk drive, one 30 MB High Speed hard disk.  
EXPANSION: Eight expansion slots.  
INPUT/OUTPUT: 1 each serial and parallel ports.  
POWER: 185 watt power supply.

### KAYPRO 386

#### the mean machine



CPU: 16 MHz 80386.  
RAM: 1 MB 32 Bit wide RAM, expandable to 16 MB.  
ROM: IBM AT compatible.  
DISK STORAGE: 1.2 MB floppy disk drive, one 40 MB High Speed hard disk.  
DISK CONTROLLER: IBM AT compatible disk controller supporting up to two (2) floppy disk drives and two (2) hard disks of up to 130 MB each.  
EXPANSION: Six available expansion slots: one 32 Bit, three 16 Bit and two 8 Bit. Room for 5 half height devices.  
INPUT/OUTPUT: 1 each serial and parallel ports on the motherboard.  
POWER: 215 watt power supply.



# DISCWARE

## Australia's Number 1 dealer

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640KB RAM, 20MB internal hard disk, 360KB floppy disk drive, parallel and serial ports, hi-res green or amber monitor, 6 month warranty.

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Feel the power! The state of the art high performance 32 bit 16 MHz plug in board for the AT.

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The Australian designed speed-up card.

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The multi user version now available.

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Clipper Compiler dB III .....	1349.00	899.00
Copywrite .....	125.00	95.00
Crosstalk XVI .....	315.00	199.00
dBase III plus .....	1470.00	945.00
Fastback .....	299.00	250.00
Framework 2 .....	1395.00	1050.00
Graftalk 4.08 .....	1350.00	1199.00
Harvard Total Project Manager .....	1049.00	699.00
Harvard Presentation Graphics .....	849.00	569.00
Lattice 'C' .....	995.00	875.00
Lotus 123 rel. 2.01 .....	1099.00	650.00
Microsoft Word V.3.0. ....	999.00	745.00
Microsoft Word V.3.0. Mouse .....	1299.00	945.00
Mirror .....	145.00	109.00
MultiMate 3.3 .....	1199.00	745.00
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Open Access V.2.0. ....	1299.00	899.00
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PC Alien .....	105.00	99.00
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Super Calc 4 .....	895.00	599.00
Symphony 1.2 .....	1470.00	959.00
Side Kick ver. 1.5 .....	109.00	85.00
TK! Solver 1.6 .....	599.00	499.00
Timeline ver. 2.0 .....	890.00	670.00

Availability may be limited at prices advertised.

### PC WORLD

#### World Class Awards

#### READERS' CHOICE

In a recent user survey conducted by PC World, in response to the question: "Where do you buy your software from?" Discware was placed second, behind BS Microcomp. Congratulations to Barry Saunders for beating us — this time. We wish to extend our sincere thanks to our customers for this overwhelming support. *Just watch us fly in 1987!*

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#### MODEMS

NetComm 3 + 12 modem .....	\$229.00
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NetComm Smart 1234 .....	\$1290.00
NetComm Smart 2123 .....	\$539.00
NetComm In/Modem .....	\$360.00
NetComm In/Modem 1234 .....	\$1190.00
NetComm In/Modem 123 .....	\$790.00
NetComm Smart 2400 .....	\$899.00
NetComm Smart 1200 .....	\$629.00
NetComm Trailblazer .....	\$Call

#### DISCWARE



### The SBT Database Accounting Library in dBASE III.

Free source code in every box.

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Accounts Payable	\$595
dLedger	
General Ledger/Finance	\$695
dAssets	
Asset/Depreciation	\$595
dProject	
Project/Job Accounting	\$695
dBackup	
Menu/Backup	\$ 99
Multi-user version available	

### IBM HARDWARE

SAM Computer Phone Answering .....	\$660.00
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Intel Above Board .....	\$599.00
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Qubie 20MB hard disk .....	\$1050.00
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Sigma Color 400 .....	\$990.00
Taxan Super Vision III .....	\$839.00
Qubie color monitor .....	\$699.00
Irwin 10MB tape internal .....	\$1150.00
AST 6 Pak with Sidekick .....	\$379.00
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Tandon 20MB hard disk .....	\$1049.00
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NEC P5 Pinwriter .....	\$1800.00
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NEC ELF Spinwriter .....	\$799.00
Brother M1509 .....	\$829.00
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NEC Multisync .....	\$1599.00
Brother M 1709 24 pins .....	\$999.00
Plus HardCard 20 .....	\$Call
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Prices apply to stocks held as at 12/12/86.

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## All Aboard 286

IDEAssociates

Phone: (02) 387 5222

Price: Ask

IDEAssociates has released what is claimed to be the first function-packed board for the IBM XT 286 and the AT. By offering key capabilities on one card, All Aboard 286 frees up slots for other computing functions. The system provides three memory options; conventional memory form bringing the AT from 512 Kbyte to 640 Kbyte, up to 4 Mbytes of expanded memory for Lotus/Intel/Microsoft specification and up to 16 Mbytes of extended memory. The 286 board disk addresses the maximum 16 Mbyte memory of the PC XT 286 and AT machines through the use of 1 Mbyte RAM chips. So as not to use a daughter board to accommodate the memory, IDEA uses single in-memory modules which are packed vertically to the boards surface, thus taking a fraction of the space required by conventional RAM chips. The board also offers EGA support using the IBM enhanced graphics and is compatible with the IBM colour graphics adaptor and monochrome display adaptor and fully supports all software written to these standards.

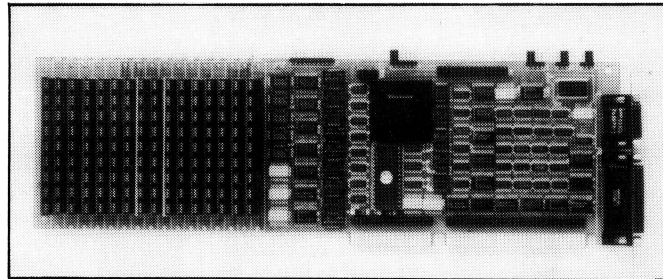
## Laser Optical Disk Storage

Micrologic Technology

Phone: (02) 705 5667

Price: Phone up

As we enter the laser age, it seems reasonable that we will see more laser technology used in such areas as data storage. Micrologic Technology has aimed at the laser market with the release of a range of Laser Optical Disk mass storage devices from N/Hance systems. The model 525 optical disk drive allows the users of PC, XT, and AT and compatible computers to add more reliable and higher capacity mass storage at a lower cost. The 525 provides up to 240 Mbytes of formatted online removable media data storage. WORM technology (Write Once Read Many) lets users build an easy access system to view programs. The drive utilizes a 5.25 inch optical disk cartridge and is supplied with a controller card. The data transfer rate is 2.5 Mbytes per second and is you get out your



stop watch you'll find that the average access time is comparable to a hard disk drive.

## Earth EMM and EMMX

Earth Computer Systems

Phone: (03) 439 4900

Price: Not supplied

Earth Computer Systems has released a range of memory cards for the IBM PC/XT/AT compatible computers. The cards are designed to conform fully with the Lotus-Intel-Microsoft Expanded Memory Specifications (LIM-EMS). The companies have developed this new specification to overcome the so called 640 Kbyte memory barrier. (An increasingly large number of software packages, such as Lotus 1-2-3, AutoCAD, Framework and dBase III, now utilise this feature.) This allows the user to run larger applications much faster. The Earth EMM (Extended Memory Module) can also function as a RAM disk. The memory emulates a disk drive where you can store and retrieve data at many times normal speed. The other advantage is that with the print buffer operating there's no waiting. Features include the ability to install 8 Mbytes in just two adjoining expansion slots, and a four layer dry film resist PCB which is used to achieve maximum reliability in regards to power distribution and electronic noise.

## Power Supply for Personal Computers

ADE Computers

Phone: (03) 568 7877

Price: not supplied

ADE Computers have announced the availability of the FU300VA Uninterruptable Power Supply. The FU300QA UPS has an output rating of 300 watts, with it activating within four milliseconds of a power failure. This is suffi-

cient for typical personal computers on the market today. □

## DPX-215 Exchange Area Data Modems

Dataplex

Phone: (03) 735 3333

Price: not supplied

Dataplex is in the melee of modems with the release of the latest Exchange Area Data Modems. They have released high performance modems for use over physical pairs on local loops to the same Telecom Exchange, pabx local area or privately supplied point to point circuits. Just in case you live in one of those areas where lightning strikes twice, there is a modem available to take all the shocks you can give it. The DPX-215 operates at data rates to 19.2 thousand bits per second, both synchronously and asynchronously, at distances to 30 kms.

## STB Chauffeur HT Graphic Board

Roland Corporation

Phone: (03) 241 1254

Price: not supplied

Roland corporation has released what they claim is 'the ultimate' in IBM compatible graphics boards. The STB Chauffeur HT (High-Tech) is designed to overcome the main PC hardware and

software mismatches and enable spreadsheet users to display a full 132 columns on a standard IBM monochrome or colour monitor. It incorporates all the features of IBM the Mono/Printer display adapters, the Hercules graphics card, the STB super resolution 400, Tseng Labs UltraPAK-S and the STB Chauffeur cards. Chauffeur's input and output communications facilities include a standard parallel printer port, and serial port and cloak calendar options. It also provides bit-mapped graphics (accessed through window drivers) without the need to change monitors. The Chauffeur provides a bridge between these various combinations. Multi-synchronous, multi-scan facilities enable five different graphic standards to be run on monochrome and colour screens by combining the technology of five popular video display adapters.

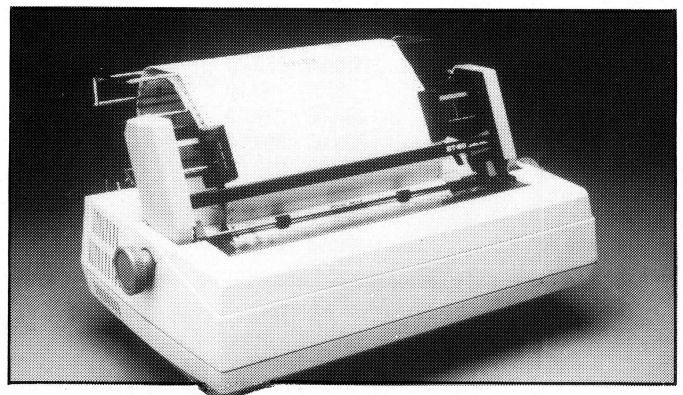
## The ST-611 Paper Feeder

Sylex Ergonomics

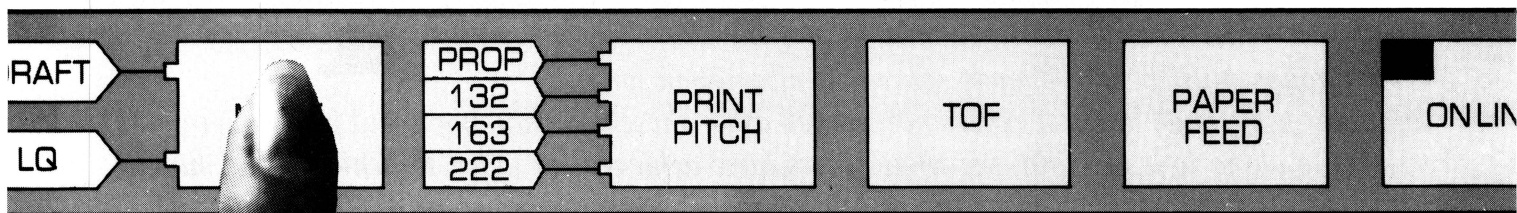
Phone: (02) 647 2888

Price: \$344

The ST-611 is designed to operate with a variety of letter and near letter quality printers. It provides accurate and reliable bi-directional paper movement of continuous stationary. A unique drive mechanism which features anti-backlash capability with low drive torch which provides a precise paper motion and good print registration and also has a continuous fan fold single or multiple part forms, up to six part forms. The ST-611 is suitable for the Ricoh RP1600, Diablo 630, C Itoh F10 and A10, Data Products DP55, Qume Sprint II and Juki 6100. ▼



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# User Groups

*User Groups must be the biggest source of information for computer users of all levels of experience, as well as for those just thinking about buying a computer. Go along to a meeting, see what others have achieved (or failed to achieve — it happens) with their machines. User Groups can help you with secondhand peripherals, public domain software, advice and lots more.*

## **Australian Capital Territory**

**ACT PC Users' Group**, Nick Hammond, PO Box 188, Parkes 2600. Meetings last Monday each month at Reid Tafe, 8 pm onwards. (062) 86 1102.

**ACT VIC-20 Users' Association**, Chris Groenhout, 25 Kerferd St, Watson 2602. Meetings first Monday each month at Boys' Grammar Scout Hall, Red Hill, 7.30 onwards. (062) 41 2316.

**Albury Wodonga Apple User's Group**, Jenny Scott (secretary), (060) 24 3225 or Don McLennan (president), (060) 46 028; meets second Wednesday every month at Wodonga High School at 7.30 pm.

**ATARI**, Chris McEwan, co-ordinator, ACTARI, PO Box E112, Canberra 2600, (062) 88 7861.

**ACT Apple User Group**, S. Nielsen, PO BOX 1231, Canberra, ACT, 2601.

**Australian ZX80 Users' Association (AZUA)**, David Vernon, 50 Waller Crescent, Campbell 2601; for ZX81, ZX Spectrum and Sinclair QL owners. Meets on the last Wednesday of every month at the Woden Valley High School library at 7.30 pm.

**Barrier MicroBee User Group**, Michael Quinn, 69 Eyre St, Brocken Hill, 2880; Meets the last Sunday of every month at the town library.

**Canberra ACT Sirius User Group**, Jim Bland, (062) 81 2824, (062) 81 2832.

**Canberra Compucolor Club (CCC)**, Meets 7.30 on first Sunday of every month at the offices of Digital Equipment, 28 Lonsdale Street, Braddon ACT.

**Canberra Microbee Users' Group**, Meets 7.30pm on first Tuesday of every month at Woden Valley High School Library. PO Box 227, Weston Creek, ATC, 2611. (062) 71 6081.

**Canberra Micro-80 Users' Group**, Harry Cooper, 113 Owen Dixon Drive, Evatt 2617; meetings third Monday each month, 7.30 pm in the large theatre, 'I' Block, Reid TAFE, for System 80, TRS80 and similar. (062) 58 3700.

**Canberra NEC Users' Group**, Mal Smith, PO Box 173, Belconnen 2616; meets first Tuesday each month at Main Conference

Room, CSIRO Headquarters, Limestone Avenue, at 7.30 pm. (062) 54 1614.

**Canberra Osborne Group**, c/o Geoff Cohen, PO Box 136,

Kippax 2615, (062) 54 7608.

**IBM User Group**, Ron Pollack (president), PO Box 5010, Sydney 2001; meets third Monday of every month at the Esso Training Centre Auditorium Forum Centre, 35 Clarence St, Sydney, at 5.30 pm. (02) 29 7033.

**Kaypro User's Group (ACTKUG)**, meets on the third Thursday of each month from 6.30 pm in the J Block theatre, Canberra TAFE, Constitution Avenue, Reid. Contact Des Ireland, on (062) 47 5330.

**Micsig**, Registrar, PO Box 446, Canberra 2601.

**PC Users' Group** (for users of IBM PC and similar machines); meets on the last Monday of each month at 8 pm in the main theatre, Building J, Canberra TAFE. Contact address: PO Box E188, Parkes, ACT 2600.

**Sirius/Apricot User Group**, M J Sim, 253 Hindmarsh Drive, Rivett 2611; meetings 7.30 pm third Tuesday each month, 88 Wollongong Street, Fyshwick 2609.

## **New South Wales**

**Albury-Wodonga District Microbee User Group**, Eric Eulenstein, 202 Kooba St, Albury 2640, (060) 25 1601.

**APF Users' Group**, Norm McMahon, 288 Kissing Point Road, Turramurra 2074, (02) 44 2645.

**Apple Team Australia**, 5 Walpole Place, Wahroonga 2076; (02) 48 1018.

**Apple Users' Disk Exchange Club**, Phillip Donnadieu, Flat 1 8-10 Lancelot Street, Allawah 2218; (02) 579 4547.

**Apple Users' Group**, Colin Rutherford, PO Box 505, Bankstown 2200; meets 6.30 pm second Monday of each month (Tuesday after public holidays) at Sydney Grammar School, Stanley Street, Sydney. (02) 520 0926.

**Atari Computer Enthusiasts**, Tony Reeve, PO Box 4514, Sydney 2001.

**Ausborne**, The Secretary, PO Box C530 Clarence Street, Sydney 2001; meetings third Wednesday each month at 6.0 pm, at Burwood RSL, 96 Shaftesbury Road, Burwood. (02) 95 5378. Bulletin board: (02) 439 7072.

**Ausbug**, Stephen Ford, PO Box 62, Londonderry 2753.

**Banana Coast Microbee Users Group**, Ken Darby, 168 Sawtell Road, Toormina, 2452. (066) 531 439.

**Bay Microbee Users Group**, Wayne Herring, BOX 308, Nelson Bay, 2315.

**Bankstown-Fairfield Computer Group**, Arthur Pittard, 36 Hubert Street, Fairfield 2165; meets 4th Wednesday of the month at Canley Vale High School, Prospect Road, Canley Vale at 7 pm, (02) 72 2881.

**BEDBUG**, Chris Fallshaw, Eltham College.

**Blue Mountains Microbee User Group**, meets first and third Friday of the month, at 7.30 pm at the Springwood Neighbourhood Centre. A1 correspondence to Joe McKay, Secretary, 25 Reserve Avenue, Blaxland 2774; (047) 39 3154.

**Blue Mountains Homebrew Computer User's Group**, Eric Lindsay (secretary), (047) 51 2632.

**Bondwell User's Group**, Ray Richards, 7/39 Ross Street, North Parramatta 2151, (02) 683 3940.

**Broken Hill Microbee Users' Group**, Peter Cotter, 533 Radium Street, Broken Hill 2800, (080) 88 1621.

**Casio PB 700 User Group**, Terry Gill, 27 Greenleaf Street, Wentworthville 2145, (02) 636 1652.

**Central Coast Apple Users' Group**, Charles Lee, (043) 67 6845 or Mick Tierney, (043) 41 9350. Meets first Tuesday each month at the Central Coast Grammar School, Erina Heights from 7.30 pm. (043) 84 3419.

**Central Coast Microbee Club**, Max Maughen, PO Box 36, Ettalong Beach 2257, first Tuesday every month at Applied Technology, West Gosford. (043) 24 2711.

**Compucolor Users' Group**, Tony Lee, 52

# USER GROUPS

Cowan Road, St. Ives 2075, phone (02) 449 8824.

**Cooma Microbee User Group**, Phil Zikan, PO Box 92 Cooma 2630, (053) 52 2756; meets on the second Friday of the month.

**Dataflex User Group**, Roger Walker, (02) 699 3877.

**dBase Users' Group**, PO Box 297, Neutral Bay Junction 2089; meets every second Tuesday each month at the Cowper Room, St Andrew's House, corner Bathurst and Kent Sts, Sydney.

**DEC Personal Computer Special Interest Group**, Maggie Alexandria, DEC Australia, Northern Tower, Chatswood Plaza, Railway Street, Chatswood 2067, (02) 412 5252.

**Dubbo and District Microbee Users' Group**, John Taylor, 18 Cunningham Street, Dubbo 2830; meets fourth Wednesday each month at 7.30 pm in the Dubbo High School Computer Room.

**Griffith Computer Association**, Ron Gauci, PO Box 425, Griffith 2680, (069) 62 5877.

**Griffith Microbee User's Group**, Rick Mines, 2 Edmondson Avenue, Griffith, 2680; meets the fourth Monday of each month at Neighbourhood House at 7.30 pm.

**Hawkesbury Apple User Group**, Secretary Steve Bennett; meets fourth Monday each month at 7.30 pm, Richmond Primary School, (045) 78 2195.

**Hawkesbury Commodore Computer Club**, Richard Farrell, 12 Inverary Drive, Kurmond 2757; meets fourth Tuesday of each month at 7.30 pm at Neighbourhood Centre, West Market Street, Richmond 2753.

**Hawkesbury Microbee Computer Club**, Bruce Rennie, 6 Warks Road, Kurrajong Heights 2758; workshops 7.00 pm third Friday, and general meetings 7.30 pm first Friday of each month in the Microbee Network Room, Library Building, Richmond High School, Cnr Penrith and Lennox Streets, Richmond 2753. (045) 67 7329.

**Hitachi/6809 User Group**, meets on the first Saturday of each month, at 2 pm; contact Robert Lohr on (02) 662 4150, after 6 pm for locations.

**HP Desktop Computer Users' Group**, Dr R W Harris, CSIRO Division of Mineral Physics, PMB 7, Sutherland 2232, (02) 543 3460. Hewlett-Packard Users Group (HPUG), Darren Stokes, 3 Buckley Drive, Coonamble 2829.

**Hunter Users' Group** — All Microcomputers, Secretary, PO Box 39, Broadmeadow 2298; meets on the second Wednesday of each month in Room 308, Building W, University of Newcastle, at 7.45 pm. Membership is primarily Apple II oriented, but anyone with interest in micros welcome.

**Illawarra Apple Core** Secretary, Chris Haley, 358 Cordeaux Road, Mt Kembla 2526. Meets at 8 pm in the library of the Holy Spirit College Bellambi on the 4th Monday of each month.

**Illawarra IBM PC Club** — All IBM

**compatibles**, Dick Adams (secretary), c/o John Lysaght Ltd, Delivery Code 29, PO Box 77, Port Kembla 2505; (042) 75 6721.

**Illawarra Microbee Computer Club**, Ronald Read, 49 Beatus St, Unanderra, 2526; meets every 4th Monday at 7.30 pm, Wollongong Institute of Education, Northfield Ave, Gwynneville; (042) 95 1142.

**Illawarra Super 80 Users' Group**, Jim O'Grady, Chairman, PO Box 1775, Wollongong 2500.

**Lotus Users Group (Sydney)**, Peter Philippsohn, BOX 5010, Sydney 2001.

**Macarthur Computer Users Association**, Brian Cooper, 20 Hunter St, Campbelltown, 2560; meets first Monday each month at Airds High School, Briar Road, Campbelltown 2560, at 7.30 pm; all machines are catered for. (046) 25 1146.

**Macquarie Microbee Users' Group**, Brian Thompson; meetings first Monday each month at Denistone East Primary School at 7.30 pm. (02) 85 1659 after hours.

**Macwest Users' Group**, PJ Lynden, 11 Toohey Avenue, Westmead 2145; Services will include newsletter, bulletin board and public domain library. Membership \$10 per annum.

**Maitland Microbee Users Group**, Ross Bell, 42 Redbill Drive, Woodberry, 2321. (049) 332 972.

**MEGS (Microcomputer Enthusiasts' Group)**, John Whitlock, PO Box 1309, Chatswood 2067; meetings third Monday each month at rear of St Andrew's Presbyterian Church, 37 Anderson Street, Chatswood 2067, (02) 638 1142.

**Mirobee Users' Club (Broken Hill)**, Peter Cotter, 533 Radium Street, Broken Hill 2880, (080) 48 8813.

**New England Microbee Users Group**, CSIRO, Pastoral Research, New England Highway, Armidale, 2350. (067) 784 000.

**Newcastle Microbee Users' Group**, Heather Clarke, 31 Pokolbin St, Broadmeadow, 2292.

**Newcastle Microcomputer Club**, Angus Bliss, PO Box 293, Hamilton 2303; meetings 7.30 pm second and fourth Monday each month at Room G12, Physics Building, Newcastle Uni. (049) 67 2433.

**Nightline**, is an after-hours (10 pm to 7 am, seven days a week) computer information service, which provides local and overseas news, clues and reviews. Mainly for Apple users, but others are welcome. Offers around 20 different bulletin boards, and uploading and downloading facilities; phone (02) 528 8968. Sysop: Hamish Bowly.

**NSW Primary School Microbee Users' Group**, Mr Peter Stretton, c/- Hunters Hill Primary School, Alexandra Street, Hunters Hill 2110.

**NSW 6800 Users' Group**, 27 Georgina Avenue, Keiraville 2500.

**Northern Beaches VIC User Group**, E Tuxford, 161 Barrenjoey Road, Newport 2106, (02) 997 2467.

**Northern NSW MICC Chapter**, Alen Hartley,

Dundurrabin via Dorriggo 2433, (066) 57 8160.

**Open Access User Group**, Steve Cook, Advanced Data Technology Pty Ltd, 1 Terrell Avenue, Wahroonga 2076; (02) 48 0511.

**OSI Users' Group**, Nigel Bisset, (02) 411 7142.

**Ozbeeb User Group for the Acorn BBC Microcomputer**, Meets twice a month at the Australian Film & Television School — Open Program, 3 Lyon Park Road, North Ryde — second Wednesday of every month at 7 pm (organised talks and demonstrations); 4th Monday of each month at 6.30 pm (general meeting). Annual subscription for full membership \$10.

**PC Users Group**, Janis Meyers, BOX 5010, Sydney 2001. (02) 297 033.

**PocketComputer Users' Club**, George Antonijevic; for those interested in pocket computers, whatever the brand. Meetings held on the first Wednesday of each month at 7.30 pm at the Woodstock Community Centre, Church St, Burwood 2134, (02) 683 4296.

**President Computer Users' Group** for owners of President and other IBM-compatible PC and AT computers. Meets on the last Tuesday of every month at the Hornsby Inn, (Claude Fay's Hotel), 29 Florence Street, Hornsby, from 8 pm. Contact Raymond or Trichia Toms (02) 456 3756, or Rick West (02) 872 4177.

**RAT Microbee Users Group**, James Quinn, BOX 207, Raymond Terrace, 2324.

**Sega Users' Club**, Jim Robinson — Penrith branch, (047) 30 1834; Jeff Wilson — Parramatta branch, (02) 684 4128.

**Sharp PC-1350 User Group**, contact Bob Hamilton, (02) 639 3637.

**Sharp MZ-700 User Group**, contact Terry Gill, 27 Greenleaf Street, Wentworthville 2145; (02) 636 1652.

**Sirius/Apricot User Group**, Mark Dickinson, Barson Computers; meets first Tuesday each month at 6.30 pm, Unit D, 55 Talavera Road, North Ryde 2113, (02) 888 9444.

**Sorcerer Users' Group**, PO Box E162, St James 2000; meetings third Friday each month at 8.00 pm in Greenwich Community Hall, Greenwich Road, Greenwich 2065.

**Southern Districts Commodore Users' Group**, Lex Toms, 3 Lucille Crescent, Casula 2170; meetings first and third Wednesdays each month, API Hall, Currajong Road, Prestons 2170. (02) 602 8691.

**Sutherland Super 80 Group**, Jim Traeger, (02) 525 2018.

**Sydcorn 64 (C64 User Group)**, Philip Dean, GPO Box 1542, Sydney 2001; meets on the second Wednesday of each month at the Abraham Mott Hall, Argyle Place, Miller's Point.

**Sydney Forth Group**, Peter Tregeagle, 10 Binda Road, Yowie Bay 2228; meets second Friday of each month at 7.00 pm in the John Goodsell Building, UNSW room LG19. (02) 524 749.



# USER GROUPS

**Sydney Kaypro Users' Group**, Hans Schneider, C/O Dr H. Schneider, Geography Department, UNSW, PO Box 1, Kensington 2003; meetings second Tuesday of each month, 8.00 pm, Burwood RSL Club. (02) 697 4400 (w) or (02) 309 2961 (h).

**Sydney Lotus 1-2-3 User Group**, Ron Pollak, (02) 29 5316.

**Sydney Macintosh Users Group, amalgamated with the Sydney Apple Users Group**, Alan Todhunter, BOX 152 Holme Building, Sydney University, 2006. Meets the last Tuesday of the month at 6.30 pm at Laboratory 1 of the Carlaw Building, Sydney University. (B) (02) 736 0488, (H) (02) 637 6775.

**Sydney Microbee User Group**, Ron Taylor (secretary), (043) 41 5251 after 7 pm; PO Box C233, Clarence St, Sydney 2000. Meets third Saturday each month from 1 to 4.30 pm, in the assembly hall of Strathfield Girls' High School, Albert Road, Strathfield, (02) 810 4758 (after 7.30 pm).

**Forming a Sinclair QL Users Group**, Vadim Kuchin, BOX 729, Parramatta, 2150.

**Sydney TRS80 Users' Group**, meetings second, third and fourth Saturday of each month at Botany. (02) 666 4716 bh.

**System 80/TRS-80 & Colour Computer Users' Group**, Jim Fisher, 37 Fairburn Avenue, West Pennant Hills 2120.

**TAG — The Access Group**, Bob Dolton, PO Box 943, Orange 2800; for Access and Actrix users.

**The Great Western Computer Users' Group** Jim Graham, PO Box 210, Wentworthville 2145; (02) 636 9219. All micro users are welcome. A 40-minute beginner's session is held at the start of each meeting. The club meets on the first Tuesday of each month, at 8 pm.

**The Morrow User Group** Alan Stern, (02) 750 8274; meets on the fourth Wednesday of every month at the Woodstock Community Centre, Church Street, Burwood at 7.30 pm.

**TI Sydney Home Computer Users' Group**, PO Box 149, Pennant Hills 2120.

**Tuggerah Lakes Computer Users' Group**, Frank James, 125 Woolana Avenue, Budgewoi 2262; meetings second Thursday each month at Old Primary School, Wyong, at 6.30 pm. (043) 907 339.

**Wagga Microbee Users' Group**, John Simmons, 47 Undurra Drive, Glenfield 2650; meetings first and third Tuesdays each month in the Tolland-Glenfield Neighbourhood Centre at 8.00 pm. (069) 31 1302.

**Western Sydney PC and Compatible User Group**, Ben Sharif, (047) 36 4825; meets on the third Sunday of the month at 1.30 pm, 27 Cosgrove Crescent, Kingswood 2750.

**Wizzard User Group**, John Mifsod, 150 Bouganville Road, Blackett 2770, (02) 628 0801.

**Wizzard Software Exchange of Australia**, John Pospisil, 3/7 National Avenue, Bulli,

2516. (042) 67 4518.

**ZX-Spectrum Users' Club**, Craig Kennedy, PO Box 466, Epping 2121.

## Victoria

**Albury Wodonga User's Group**, Jenny Scott (secretary), (060)24 3225 or Don McLennan (president) (060) 46 028; meets second Wednesday of every month at Wodonga High School at 7.30 pm.

**Apple Users' Society of Melbourne**, D Halprin, PO Box 43, Forest Hill 3131, (03) 387 3221.

**Atari User Group Melbourne**, Kelvin Eldridge, PO Box 173, Reservoir 3073.

**Australian Forth Interest Group**, Tony Latmore, PO Box 704, Sale 3850, (051) 44 2011.

**Australian North Star Users' Association**, PO Box 194, Wangaratta 3677.

**Ballarat Computer Users' Group**, Publicity Officer: John Preston, (053) 31 4363.

**BBC Users' Group**, Mr Howell (Secretary), 1 Washusen Road, Heathmont 3135, (03) 420 2611 (B). Meets last Wednesday each month from 7 to 9.30 pm at Copiquest, 423 Clarendon Street, South Melbourne 3205.

**Billanook Computer Forum**, Maurie Canterbury, Cardigan Road, Mooroolbark 3138, (03) 725 5388.

**Chip 8, 6800, 1802 User Group**, Frank Rees, 27 King Street, Boort 3537.

**Compucolor Users' Group**, L Ferguson, 12 Morphet Avenue, Ascot 3342.

**DEC Personal Computer Special Interest Group**, see NSW entry.

**Essendon Commodore 64 User Group**, George Stathoulis, 8 Byron Avenue, East Keilor 3033, (03) 337 4159.

**Forth Interest Group**, Lance Collins, PO Box 103, Camberwell 3124; meets on the first Friday of the month at the Bowen Street Neighbourhood Centre, 102 Bowen Street, Camberwell South 3124. (03) 29 2600.

**Geelong Commodore Computer Club**, Phil Rayner, PO Box 1455, Geelong 3220, (052) 75 4949.

**Geelong Computer Club**, Colin Lowne, PO Box 520, Geelong 3220; (052) 55 1232. Meets at 8 pm, on the first and third Friday of each month in the rooms of the Geelong Amateur Radio Club, Storrer Street, East Geelong.

**\*R:IBM & Columbia Computer Users' Club**, Giles Bray, 22/11 Auburn Grove, Hawthorn East 3123; meets second Tuesday each month, 7.30 pm, at the Victorian College of Pharmacy, (03) 82 7632.

**Kaypro Users' Group of Victoria**, George Kunz, PO Box 159, Forest Hill 3131; meetings fourth Sunday each month at Burwood State College Community Resources Centre at 2 pm. (03) 857 5462.

**KAOS (Ohio Scientific)**, David Anear, 49 Milleva Crescent, Dallas 3047.

**Latrobe Valley Colour Computer Users' Group**, George Francis, 31 Donald Street, Morwell 3840; for TRS80 and MC10 users.

(03) 22 1389.

**Melbourne Atari Computer Enthusiasts**, PO Box 340, Rosanna 3084; meetings held on second Sunday of each month (except January) at 12 noon at Monash University Rotunda.

**Melbourne BBC Users' Group**, meets last Wednesday in the month at Conquest P/L, 423 Clarendon Street, South Melbourne. Ring the secretary on (03) 729 4619 (AH).

**Melbourne Lotus 1-2-3 Users' Group**, Robert Taylor, (03) 267 4800.

**Melbourne Microbee Users' Group (MBUG Australia Inc.)**, Grant Forrest, PO Box 157, Nunawading 3131; meets at 7.30 pm on the second Wednesday of each month at Mount Waverley Community Centre, Cnr Miller Crescent and Stephenson's Road, Mount Waverley. Different types of membership, including standard, and student. Hackers night held on fourth Wednesday of each month at the same address.

**Melbourne PC User Group**, meets on the first Wednesday of the month at 6 pm in the Ground Floor Auditorium, Clunies Ross House, 191 Royal Parade, Parkville. Contact Garry Bryant (03) 615 4844. Mail to PO Box 1728P, Melbourne 3001.

**Melbourne Hitachi Users' Group**, Branko Colavizza, PO Box 191, Rosanna 3084, (03) 434 2541.

**Melbourne Super 80 Users' Group**, Hon. Sec. Victor Shuttleworth, (03) 723 2713.

**MICOM (Microcomputer Club of Melbourne)**, Steve Walker, PO Box 60, Canterbury 3126. Meets on the third Saturday of the month at 2 pm, in Building E, Victoria College. (059) 78 6133.

**Motorola Users Group Society (MUGS)**, Tony Douglas, 10 Savannah Crescent, Epping 3076. Meets on the second Tuesday of the month, at 7.30 pm, at Balwyn Branch Library, 366 Whitehorse Road, Balwyn 3103.

**National Mutual Micro Users' Group**, R Prewett, NMLA, PO Box 2830AA, GPO Melbourne 3001; for National Mutual staff.

**National Sinclair User Group**, PO Box 148, Glen Waverley 3150.

**NEC Portable Users' Group**, D Green; meetings second Wednesday of each month at Myers Computer Centre, Lonsdale Street, at 7.30 pm. (03) 611 3380.

**Northern/Western Suburbs Computer Users' Group**, John King, 284 Union Road, Moonee Ponds 3039. Contact CP/M Data Systems, (03) 338 9304.

**Peninsula Computer Club**, George Thompson, 3 Patterson Street, Bonbeach 3196; meets second Tuesday each month at Chisholm College, Frankston 3199; many types of computers catered for. (03) 772 2674.

**Puckapunyal Microbee Users Group**, G Chinner, 9 Monash Drive, Seymour, 3660.

**Sega Users' Club**, Peter Lindeman, 6 Bay Street, Port Melbourne 3207.

**Seymour-Pucka Computer Club**, Garry

# EARTH

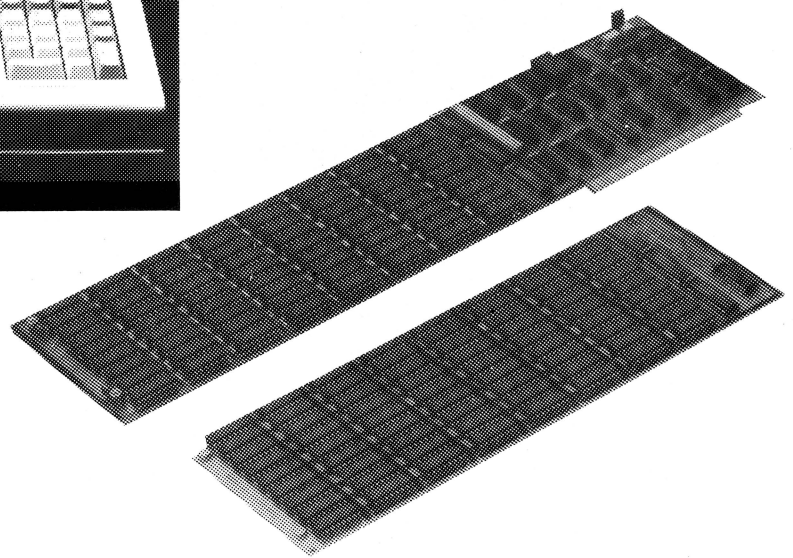
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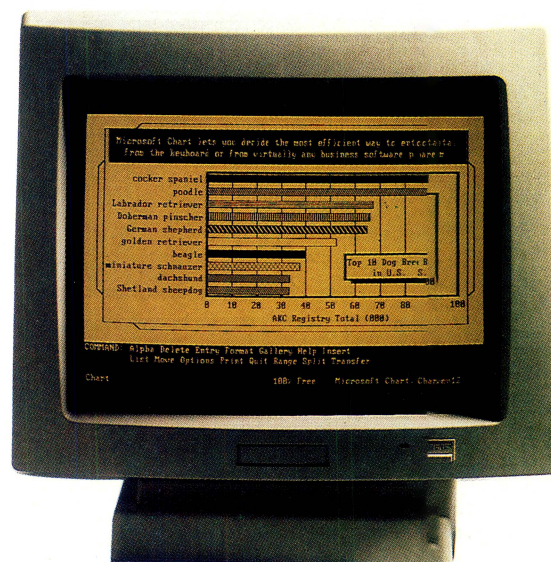
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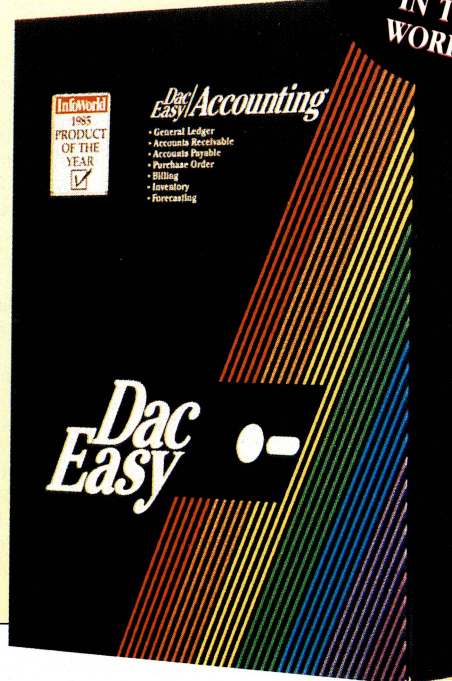
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## General Information

- Menu driven
- Password protection
- File capacity limited only by disk space
- Support contract availability

## General Ledger

- Unlimited # of accounts with multi-level accounting, unlimited departments
- 3 Year account history for CRT inquiry
- Pencil & pen feature to correct mistakes without reverse entries
- Unique budgeting routine (see Forecasting)
- CRT transaction inquiry, unlimited journals
- Activity report, trial balance, financial statements, etc.

## Accounts Receivable

- Open invoice or balance forward
- 7 Customized columns for aging report
- Unlimited # of customers
- Mailing labels and directories with 4 different sorts
- Automatic finance charges
- Supports partial payments
- 3 Year customer history for # of invoices, sales, costs, and profits
- Customized text on statements
- Cash flow analysis
- Sales analysis
- Automatic sales forecasting by customer, salesperson or customer type

## Accounts Payable

- Cheque printing and up to 10 invoices paid per cheque
- Automatic allocation of available cash to payables
- Vendor directories with sorting by vendor code, name, or territory
- Aging reports with 7 customized columns
- Unlimited # of vendors
- Mailing labels with 4 different sorts
- 3 Year vendor history for CRT inquiry and printing
- Flexible payment calendar
- Automatic forecasting of purchases
- Unlimited allocations per invoice

## Inventory

- Supports average, last purchase, and standard costing methods
- Powerful physical inventory routines
- Accepts any unit of measure like fractions/ dozens/ gross/ hours/ minutes, etc.
- Automatic changing of costing methods
- Time and product inventory
- 3 Year product history in units, dollars, cost, and profits
- Automatic forecast of product sales
- Automatic pricing assignments
- Alert and activity reports with 11 sorts
- CRT shows on-hand/ on-order/ committed/ sales/ cost/ profit/ turns/ GROI

## Purchase Order

- Usable for inventory and non-inventory items
- Allows up to 99 lines per purchase order
- Per line discount in %
- Purchase Order accepts generic discounts/freight/taxes/insurance
- Purchase Order accepts back orders & returns
- Purchase journal
- Automatic interfacing with General Ledger, Payables, and Inventory

## Billing

- Invoicing on plain or pre-printed forms
- Prints sales journal
- Automatic updating of committed products in inventory
- Ability to customize invoice for remarks
- Allows return credit memo
- Interfaces with Inventory, Accounts Receivable and General Ledger

## Forecasting

- Unique program that automatically forecasts using your 3 year history
- Forecast revenue and expense accounts
  - Forecast vendor purchases
  - Forecast customer sales, cost, and profit by customer or salesperson
  - Forecast inventory item usage by 4 automatic methods
  - Forecast by same as last year, or % base from last year, or trend, or line analysis method

Minimum Hardware Requirements:  
IBM (PCjr, PC, XT or AT) or other compatibles, 128K memory, one 5 1/4 DSDD floppy disk, 132 column printer or 80 column printer in compressed mode, 80X24 CRT, MS-DOS<sup>1</sup> PC DOS<sup>1</sup> 2.0 or later.  
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# USER GROUPS

Sutton, 25 Malaya Road, Puckapunyal 3662; (057) 93 1091.

**Sharp Computer Users' Association**, The President, 7 Faye Street, East Burwood 3151.

**Sharp MZ-700 User Group**, Anthony Saliba, 6 Elm Court, Rosebud 3939; (059) 86 3024.

**Spectravideo Users' Group**, Mitch Raitt, 3 Clivejay Street, Glen Waverley 3150, (03) 233 2357.

**Sorcerer and CP/M Users of Australia**, Secretary, SCUA Inc, GPO Box 2402, Melbourne 3001. Meets on the first Sunday of the month, February to December, at 2 pm at Victoria College, Burwood Campus, 221 Burwood Highway, Burwood 3125. RCPM (03) 74 5081.

**TI-99/4A Users' Group Melbourne**, Wayne Worlidge, 123 Ashburn Grove, Ashburton 3147, (03) 25 1832.

**The Motorola User Group (MUGS)**, Clive Allan, 11 Haros Avenue, Nunawading 3131; group is interested in 6800/02/09-based computers, particularly if running Flex, although this is not a prerequisite to join. (03) 878 1298.

**Upper Yarra Computer Reference Group**, for microcomputer enthusiasts and educators. Contact Albin Wallace, Woori Yallock Education Centre, (059) 64 6617.

**Victorian Association of Computer Educators**, Arthur Totrall, PO Box 69, Whittlesea 3757.

**Victorian Osborne Users' Group**, Tony Clay, PO Box 169, Camberwell 3124, (03) 697 6479.

**Victorian VZ-200 User Group**, Luigi Chiodo, 24 Don St, Reservoir 3073, (03) 460 3770.

**Victorian Wizzard Users' Group**, Barry Klein, 24 Russell Street, Bulleen 3105, (03) 850 7275.

**West Microbee Users Group**, Peter Hallgartent, PO BOX C299, ST Albans 3021. (03) 366 7055.

**Wizzard User Group**, for owners of Dick Smith Wizzard and Funvision computers. The group operates only by mail and phone at present. Contact Barry Klein, 24 Russell Street, Bulleen 3105, (03) 850 7275.

**Yarra Valley Commodore User's Group** — affiliated with the Melbourne Central

**Commodore User's Group**, Barrie Vickers, PO Box 176, Lilydale 3140, (03) 735 0638; meets on the first Tuesday of each month at the Melba Hall, Cnr Market & Castella Streets, Lilydale at 8 pm.

**Yarrowonga Computer User Group**, Chris Younger, 10 Witt Street, Yarrowonga 3730, (057) 44 385; for all machines.

## Queensland

**Adventure Club**, Christine Ogden, 37 Samford Road, Leichhardt, Ipswich 4305; for all Adventure-type game players.

**Adventure News**, Stuart Elflett, MSF.550, Toogoolawah 4313. For Commodore 64 adventures only.

**Adventure Special Interest Group**, Ernie Sugrue, PO Box 594, Maryborough 4650.

**Amstrad Postal Users' Group**, Frank Elliot, 59 27th Avenue, Palm Beach 4221; a group for isolated Amstrad users — meets monthly by cassette.

**Apple-Q — The Brisbane User Group**, The Secretary, PO Box 721, South Brisbane 4101; meetings every third Sunday of month at Hooper Education Centre, Kuran Street, Wavell Heights 4012. Centre is open from 8.30 am till 4.30 pm; members encouraged to bring Apple along.

**Australian Sirius Users' Group**, PO Box 204, Chermide 4032; looks after the needs of Sirius One and Victor 9000 computer users; (07) 350 2611.

**BASIC User Group**, Chris Lucey, Cranium Computers, 34 Lawless Street, Blackwater 4717.

**Brisbane Amstrad Computer Club**, John Roberts on (07) 283 3349. Meets four times a month with the first meeting held on the first Tuesday at Junction Park State School, Weidheim St, Annerley.

**Brisbane Medfly Users' Group**, K J Walker, 120 Highgate Street, Coopers Plains 4108.

**Brisbane Sinclair (Spectrum) Computer Club**, V Lewis, 37 Samford Road, Ipswich 4305; meets third Sunday at Everton Park State High School, at 2.00 pm. (07) 355 7809.

**Brisbane Super 80 Users' Group**, Gary Gatfield, (07) 355 3173.

**Brisbane Youth Computer Group**, A Harrison, PO Box 396, Sunnybank 4109.

**Brisbug**, Sylvia Willie, PO Box 305, Wynnum Central 4178. Meets at 2 pm on the third Sunday of each month at the Toowong High School. (07) 393 3388.

**Cairns District Microbee Users' Group**, Chas Eustance, 21 Marr Street Edmonton 4869, (070) 55 4531.

**Commodore Computer Users' Group**, Mr NR Chambers, PO Box 274, Springwood 4127, (07) 808 2125.

**Computer Owners' Group**, Betty Adcock, 42 Lucan Ave, Aspley 4034; meets second Wednesday each month, 7.45 pm; all kinds of computers are catered for (07) 263 4268.

**Darling Downs Apple Users' Group**, Lloyd, PO Box 53, Darling Heights 4350. (07) 38 3060.

**DEC Personal Computer Special Interest Group**, see NSW entry.

**Gold Coast Microbee User Group**, Col McLaren, 1/100 Imperial Parade, Labrador 4215; meetings first Sunday each month, 3.00 pm, at the Southport High School. (075) 31 4610.

**IREE Microcomputer Interest Group**, N Wilson, PO Box 811, Albion 4010.

**Mackay Microbee User Group**, Geoff Gehring, PO Box 230, Mackay 4740, (079) 42 3214.

**MSX-Australia**, PO Box 1319, Southport 4215.

**NEC PC-8000 Users Group**, David Clark, PO BOX 281, Upper MT Gravatt, 4122. (B) (07) 52 3662, (H) (07) 343 7680.

**Osborne Users' Group of Queensland Uni**, Glen McBride; meetings second Wednesday each month, open to all. (07) 870 1177.

**PC-8000 Users' Group of Queensland**, David Clark, (07) 343 7680 (AH); Meets second Friday of each month at the Old Town Hall, South Brisbane.

**QBUG (Queensland BBC Users' Group)**, Meets first Tuesday each month. Ring (07) 386 022 (AH) for details.

**Queensland CP/M Users**, The Secretary, PO Box 1025, Milton 4064; meets on the last Sunday of each month at the University of

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# USER GROUPS

Old, Civil Engineering Room 1.01 (off Staff House Road) from 1 pm.

**Rockhampton Microbee Users Group**, A Parr. Frenchville State Primary School, Frenchville Road, North Rockhampton, 4701. (079) 27 9065.

**Sharp User Group of Brisbane**, meets on the second Wednesday of each month at Graceville State School. All Sharp wners welcome. Contact Bill Laidlaw, 51 Sandon Street, Graceville 4075; (07) 379 3457.

**Sega Users' Group**, Robert Horkings, PO Box 148, Fortitude Valley 4006, (07) 52 5603; meetings first Saturday of each month, YMCA Hall at 1 pm.

**Southport Commodore Computer Users Group**, Bill Fitzpatrick, PO Box 790, Southport 4125, (075) 32 0061.

**Superboard Users' Group**, Ed Richardson, 146 York Street, Nundah 4012.

**Tandy, Apple, Commodore User Group**, Chris Lucey, 34 Lawless Street, Blackwater 4717.

**The Microcomputer Society**, The Secretary, PO Box 580, Fortitude Valley 4006; meetings are held on the second Friday of each month in the Old Town Hall, corner Vulture and Graham Streets, South Brisbane 4101. Meetings start at 7.30 pm; if main gate is closed use the back stairway.

**Twin Towns Computer Users Group**, Cyril White, 16 Burdock Street, Palm Garden Water. Meets every second Tuesday night at the Elanora State School from 7 pm to 9.30pm. (075) 562 336.

**Townsville Microbee User Group (TMUG)**, Mannie Van Rijswijk, PO Box 5751, MC, Townsville 4810; meetings 7.30 pm on second and fourth Mondays each month on the Ground Floor, St Margaret Mary's Secondary School, Crowle Street, Hermit Park 4812.

**TRS80/System 80 Computer Group**, Secretary, 16 Laver Street, Macgregor 4109; meets first Sunday each month at Lindum Hall, Lindum Street, Lindum 4178, at 2.00 pm. (07) 343 5771.

**University of Queensland Osborne User's Group**, Glen McBride (president) (07) 870 1177, or Richard Duczmal (treasurer) (07) 377 3139; meets on the second Wednesday of the month, in the Axon building on campus. Membership is open to both students and non-students.

**VZ-200 Pacific Region Club**, J D'Alton, 39 Agnes Street, Toowong 4066, (07) 371 3707.

**Yass Microbee Users Group**, 25 De Mestre Street, Yass, 2582.

\*NMZX81 Club, P Carswell, 22 Braud Street, Bundaberg 4670.

## South Australia

**Adelaide Atari Computer Club (AACC)**, Secretary, PO Box 333, Norwood 5067; meets at Gilles Street Primary School, City, on first Monday (second if first is on public holiday) of each month, 7.30 to 9.30 pm.

**Adelaide Beebnet**, Contact the secretary at

PO Box 262, Kingswood, SA.

**Adelaide Lotus 1-2-3 User Group**, Paul Wragg, Pannell Kerr Foster, GPO Box 1969, Adelaide 5001.

**Adelaide Micro User Group**, Helen Ross, 63 Sturt Street, Adelaide 5000; for TRS80 and System 80 users.

**Adelaide Osborne Group**, Russell Barter, The Secretary, GPO Box 603, Adelaide 5001.

**Adelaide PC Users' Group**, PO Box 68, Walkerville 5081; contact John Roberts (08) 212 5020 (B). Meets on the second Thursday of each month, at 195 Gilles Street, Adelaide, at 7.45 pm; or as advertised in the computer section of the *Advertiser* on the Saturday prior.

**Adelaide Sega User's Group**, Jamie Andersen, (08) 263 5020 (after 4 pm); meets on the first and third Wednesdays of the month, from 7 pm, at the Lutheran church hall, 137 Archer Street, North Adelaide.

**Adelaide Super-80 User's Group**, Mr L White, The Secretary, 503 Churchill Road, Kilburn 5084; meets on the third Monday of each month, (the second Monday in the case of a public holiday) at 7.30 pm in the canteen of Mason & Cox Foundry, 123 Hayward Avenue, Torrensville 5031, (08) 260 6226. Subscription: \$5 pa.

**Aquarius Users' Club**, Benedict Sabel, 7 Duncraig Lane, 5152. \$5 membership fee covers the cost of a bimonthly newsletter.

**Beebnet, BBC and Econet User Group** PO Box 262, Kingswood 5062; the group intends to produce a newsletter on a monthly basis. It is interested in any software producers or distributors who would be interested in serving the group's market requirements.

**Commodore/VIC Computer Users' Association**, Mr Eddie Hann, 13 Miranda Road, Paralowie 5108; the SA branch meets monthly.

**Compucolor-Intecolor Users of South Australia**, PO Box 86, Torrensville 5031, (08) 352 3296.

**DEC Personal Computer Special Interest Group**, see NSW entry.

**Kaypro User Group**, Ralf Engler, 16/34 John Street, Payneham 5070.

**Microbee Users' Group of South Australia (MUGSA)**, The Secretary, GPO Box 767, Adelaide 5001.

**Sega Users' Club**, H A Jacobson, 10 Pioneer Avenue, O'Sullivan Beach 5166; (08) 382 7967.

**South Australian Apple Users' Club**, PO Box 322, Prospect 5082; secretary (02) 293 7183. Club caters for Apple II series and Mac computer users. Meets on the first Friday of every month at the Prospect Town Hall.

**South Australian Commodore Computers' User Group**, Eddie Hann, Secretary, PO Box 427, North Adelaide 5006; meetings second Tuesday each month, 7.30 pm, at Royal Caledonian Hall, 379 King William St, Adelaide 5000. (08) 258 6367.

**South Australian Foundation for Computer Literacy**, Michael Kennett, PO Box 210,

Norwood 5067; caters for children from six years (unaccompanied) or four years with older friend or brother or sister. Special emphasis on the needs of handicapped, educationally disabled and socially disadvantaged children, but *all\*ENDITAL children welcome. Family participation encouraged.* (08) 51 5474.

**South Australian Peach User Group**, Geoff Drury, 27 Creslin Tce, Camden Park 5038; special interest group attached to the SA Microprocessor Group, which holds separate meetings; (08) 295 2778 ah.

**South Australian Microprocessor Group Inc (SAMG)**, The Secretary, PO Box 113, Plympton 5038, (08) 278 7288.

**Sorcerer Users' Group of South Australia**, Don Ide, 14 Scott Road, Newton 5074.

**South Australian Apple Users' Club**, The Secretary, c/- The Bookshelf, 169 Pirie Street, Adelaide 5000.

**South Australian Microprocessor Group Inc.(SAMG)**, secretary Rick Matthews, 9 Anglesey Ave, St Georges 5064; (08) 79 3445; meets second Friday of every month, Institute of Engineers, Aust Bldg, 11 Bagget St, North Adelaide.

**South East Computer Enthusiasts' Group**, Glenn Mibus, 3 Millard St, Mount Gambier 5290; meetings second and fourth Tuesday of each month from 6.30 pm at Mt Gambier High School Computer Room, for all machines and interested parties. (087) 25 1046.

## Northern Territory

**Alice Springs Microbee Users' Group**, Douglas Craigie, c/- PO Box 3230, Alice Springs 5750.

**Darwin Microbee Users' Group (DBUG)**, Felino Molina, PO Box 3111, Darwin 5794, (089) 82 5613 bh, (089) 88 1455 ah.

**Darwin PC Users' Group**, Terry O'Brien. Meets on the first Sunday of every month at 8 pm, at 5 Binet Court Malak. (089) 27 4454.

**Northern Territory Computer Club**, Ian Diss; meets at Wulagi Primary School on the first and third Thursday of each month at 7.30 pm. Users of all machines and other interested parties welcome. (089) 27 9208.

**Northern Territory 80 Computer User Group**, R T O'Brien, 433 McMillans Road, Jingili 5792.

**VZ-200 Users' Club**, 7 Abbott Crescent, Malak 5793, (089) 27 2830.

## Western Australia

**Agriculture Users' Group**, c/- Mr R Fenwick, Department of Agriculture, Albany 6330. For farmers and the agriculture service industries.

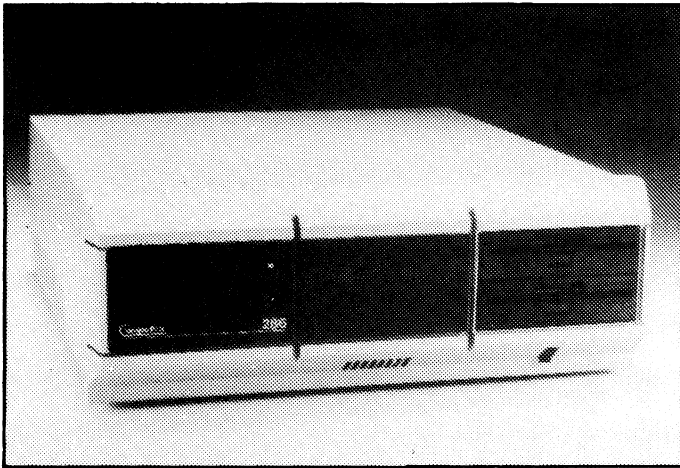
**CU West WA Compucolor/Intecolor Users' Group**, John Newman, 8 Hillcrest Drive, Darlington 6070.

**DEC Personal Computer Special Interest Group**, see NSW entry.

**Domestic Apple Users' Group**, Contact Todd



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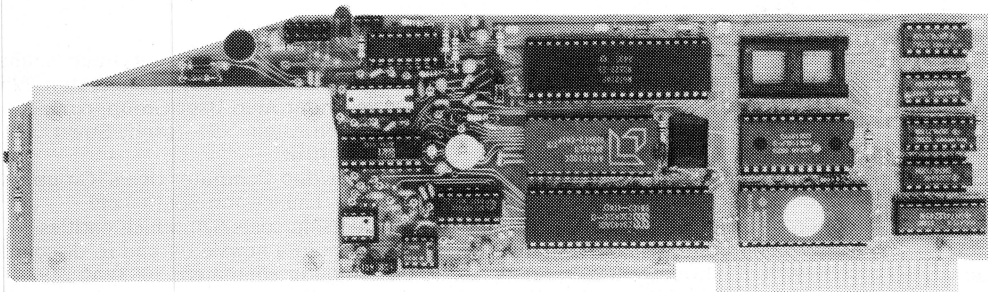
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## USER GROUPS

Venning, 73 Sydenham Road, Doubleview 6018.

**KAOS-WA**, Gerry Ligtermoet, 39 Cloister Ave, Manning 6152; for Ohio Scientific Users. (09) 450 5081.

**Kaypro User Group of Western Australia**, Ainslie Sharpe, PO Box 91, Claremont 6010; meetings second and fourth Mondays of each month in the Canteen of the Department of Agriculture, Jarrah Road, South Perth 6151. (09) 384 5511.

**Microbee Users' Group of Western Australia**, meets at 7 pm on the first Sunday of the month in the Nurses' Lecture Theatre of the Sir Charles Gairdner Hospital at Shenton Park. Write to 4 Gannkirk Road, Greenwood, WA 6024. (09) 294 1833.  
**PC Micro Users' Group**, meets on the first tuesday of the month at Royal Kings Park Tennis Club, Lower Tennis Pavilion, Kings Park Road, at 5.30 pm. Contact Peter Goodwin on (08) 274 5911 (B), or on 386 4502 (H).

**OSWEST-Osborne Users' Group of Western Australia**, Mal Ferguson, PO Box 149, Applecross 6153; meets first and third Wednesdays at the Palmyra Recreation Centre and the Subiaco Exhibition Hall respectively from 7.30 pm, for Osborne and other interested computer users. (09) 295 1449.

**Perth 80 Users' Group**, C Powell; for System 80 and TRS80 users. (09) 457 6849.

**Perth Hitachi Peach Club**, The Secretary, 1 Charf Court, Riverton 6155; for Hitachi Peach and 6809s. (09) 367 5880.

**Sharp PC Users' Group**, John Paulic, PO Box 79, Gosnells 6110. (09) 398 6303.

**Sega Users' Group**, John McClemon, 33 Favell Way, Balga 6061; (09) 342 5905.

**The Sorcerer & CP/M Users' of Australia**, Dave, 22 Verbena Road, Willetton 6155, (09) 457 1917. Meets every fortnight.

**TI Users Group of Perth**, Nigel Mercer, PO Box 246 Mt Lawley 6050, (09) 409 9683. Meets on the third Saturday of each month.  
**Sorcerer Computer Users of Australia**, The Secretary, 90 King George Street, South Perth 6151, (09) 367 6351.

**The West Australian Atari Computer Club**, Mr Alf Gaebier (Secretary), PO Box 7169, Cloisters Square, Perth 6000.

**The WA Cromenco Users' Group**, CA Marshall, Suite 2, 294 Rokeby Road, Subiaco 6008. Meets third Tuesday each month. (09) 382 2692.

**VIC-Ups**, G. Padfield, (09) 451 4629.

**Western Australian Wizzard Users' Group**, John Reid, 13 Wenlock Road, Wattleup 6166, (09) 410 2359.

**Western Australian ZX Users' Group**, Phil Taylor, (09) 328 4111 bh.

**Western Australian University Computer Club**, 2nd Floor, University of WA, Guild Building, (09) 386 1455.

### Tasmania

**Apricot User's Group**, Rick Snell, PO Box 286 C, GPO Hobart 7001, (002) 23 399926.

**DEC Personal Computer Special Interest Group**, see NSW entry.

**Devonport Computer Interest Group**, John Steveson, RSD 422, Sheffield 7306, (004) 92 3237.

**Hobart Tasbeeb**. Meets on the first Friday of the month at Rose Bay High School at 7.30 pm. (002) 34 2704.

**Launceston Microbee Users Group**, Graham Jones, 28 Lavender Grove, Launceston, 7250.

**Down Under Atari User Group**; contact Robert Bronstein, 191 Rokeby Street, Howrah 7018.

**Spectravideo Computer Users' Group**, PO Box 191, Launceston South 7249; membership costs \$20, which entitles members to a newsletter and to discounts on computer equipment. (003) 44 2493.

**Southern Tasmanian Amstrad Club**, meets at 7.30 pm on the first Wednesday of the month at Elizabeth Matriculation College (first floor). Contact Vern McKay (002) 29 4528.

**Tandy Hobart Users' Group**, Ms KJ Rees, GPO Box 1271 N, Hobart 7001, (002) 72 1426; meets on the third Thursday of each month — contact Ms Rees for details of venue.

**Tasbeeb**, John Hannon, PO Box 25, North Hobart 7000; meetings first Monday each month at Elizabethan Matriculation College in D Block at 8 pm, for BBC computers. (002) 34 2704.

**Tasmanian Apple Users Group**, Ray Williams, PO Box 188, North Hobart 7008, meets third Tuesday each month at 8.15 pm, 73 Murray Street, Hobart.

**Tasmanian TI User Group**, Co-ordinator, 1 Benboyd Court, Rokeby 7019; meetings third Sunday of each month at University of Tasmania, room 373. (002) 29 4009.

**TAS-Micro**, Peter Deckert, 1/456 West Tamar Road, Riverside 7250.

### New Zealand

**Palmerston North Microbee Users' Group**, Contact R Anderson, 6 Hendon Place, Palmerston North, New Zealand. □

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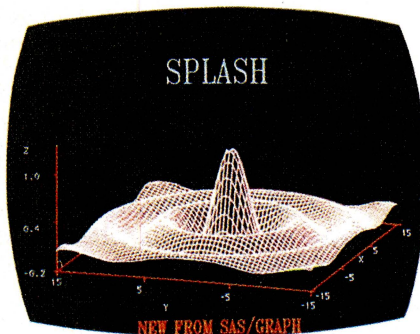
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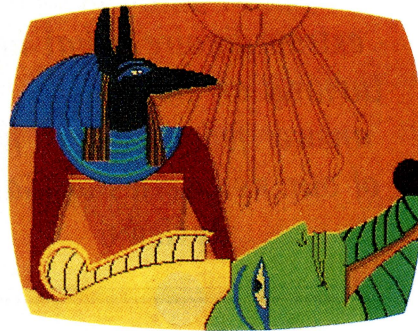
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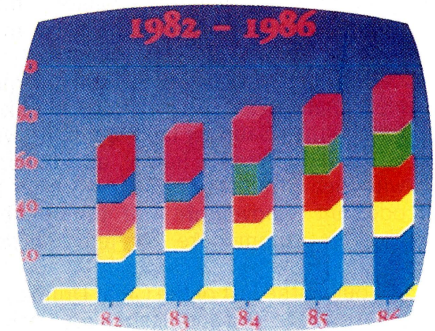
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## Game Review

### DRUID RUNS A GAUNTLET

FIRST OF ALL, let me say that I am totally hooked on Gauntlet, and as Druid is the closest thing to Gauntlet available on the Commodore 64 at the moment, I'm more than a little bit biased in it's favour!

Having said that, let me make it quite clear that I think everyone else will like it too, be they Gauntlet fans or not. So what is Druid? It's a fast, frantic, arcade game, with heavy strategy overtones, plus the odd hint of adventure in it, from Firebird for the Commodore 64 and Amstrad (\$29.95).

You are the last of the Great Druids, and you've got to find and destroy four Demon princes (not nice fellows at all!). These villains, represented by large skulls, can only be killed with your most powerful spell — the Chaos spell — and even then you have to be touching them.

The Demon princes seem to have brought rather a lot of other nasties with them, including ghosts, skeletons, snakes, slime, and devils, all of which are more susceptible to one of your spells than the others. Slime for instance, will die from just one hit of a Fire spell, but you'd need two hits of Electricity, or three of Water to kill him.

*All work and no play ain't no fun! To help relieve the tedium we asked Stuart Elflett, gamesperson extraordinaire, what he's turning on these days. His answer follows in the first of our new series of Game Reviews.*

That is where some of the strategy comes in — you must have the most effective spells to succeed and these are chosen from a chest you open. Be warned — you can't get any distance in level two if you haven't got the key from the first chest on level one.

#### Two Players

And now, onto the really good bit — two

### SUPER CYCLE

I LOVE MOTOR SPORTS, from touring cars to rally sprints, Formula 1 to Formula Vee, Speedway to the production bikes: if it's got an engine, I'll watch it. Consequently, one of my favourite genre of games is the racing game — Pitstop II, Revs, Speed King on the 64, TX 3 and Hang On in the arcades. Pitstop II is one of the games that I still go back to, time and time again, and Super Cycle has just joined the ranks.

Super Cycle (from Epyx for the Commodore 64, \$29.95) is a very good attempt at copying Hang On from the arcades. Pity you don't get a plastic bike with it, though! First of all, it is very, *very* fast. Much quicker and smoother than Pitstop II, and you know that means quick!

The graphics are excellent, usually just a blur at race speeds. If you go round slowly and take a look, obstacles on the road come up in smooth 3D, growing

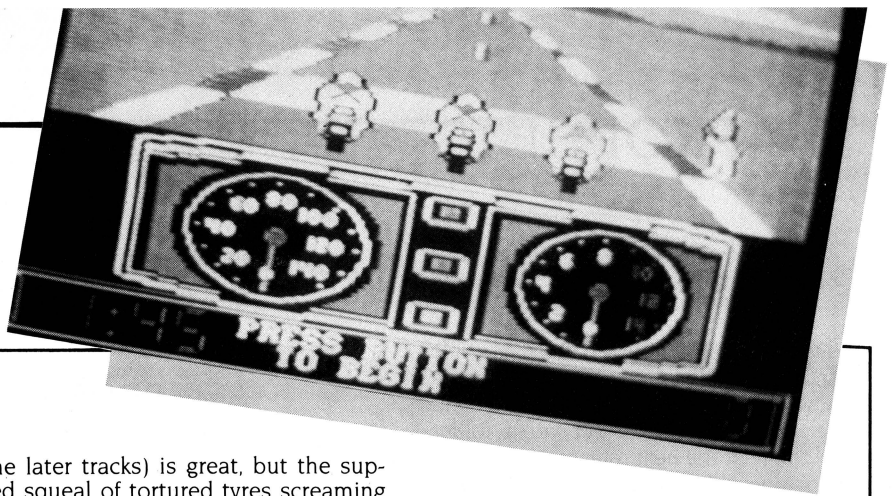
players, one controlling the Druid, the other controlling the Golem. What's the Golem? This large, powerful being is created by one of the Druid's spells — and he is also rather stupid. (All the references in connection with Terry of TV's Minder are justified!) Anyway, in two player mode, the second player can make the Golem run (run? run?? more like plod!) around bashing the nasties and protecting the Druid. Using the Golem with just one player is much harder, as you have to use the Commodore key to cycle through the commands Wait, Follow, and Send.

If you are using two players, you may have trouble getting the Golem to follow you through to the next level. Try making him follow in manual mode — this often works.

The graphics on the 64 version are great — I love the spinning pentagrams. The sound is reasonable, some of the effects are great, and there is a nice tune on the title pages.

Fighting your way through the game will take a long while. My main gripe is that there is no save option! After working your way up to level five and you run out of energy, or find you don't have the necessary Chaos spell, you have to restart from the beginning. But — all in all, an excellent game. □





larger as you get close, and not just appearing on the screen.

The screen view is the usual *hounding along in a helicopter behind your vehicle*, with all the necessary bits, tachometer, speedo, timer, score and some idiot lights for the gears shown on screen. The three gears seem to only be of use at the start (red line it every time!), or after crashing, change down during the race and you'll be hit from behind.

#### For Posterity

The high score table is stored on disk, so your name, rude messages, and the like, are saved for posterity. If the messages get too rude, you can scratch the table and start again. The High score game seems slightly strange — press shift for 'small' letters, otherwise all you'll get is capitals.

My main gripe with this game is the sound, it could have been a lot better. It's not totally naff: the bike sounds good through its rev range, the thunder (on one

of the later tracks) is great, but the supposed squeal of tortured tyres screaming for grip on hot bitumen round the tighter corners just doesn't work.

The tune on the title screen and high score table is superb, and sets the scene for picking bike colours, leather style and colour, and what level to start at. I don't know whether colours make any difference — they might seed the randomiser, anyway. I've had some of my best races on a pink bike with pink leathers!

The other thing that annoyed me was the fact that you can't ram the other bikes off the track, you just seem to bounce off them. Any one who's seen Hang On in the arcades will know that ramming is one of the big surges of the game — if they get too close, knock'em flying. That work in Super Cycle; in fact, you're more likely to blow your own tyres trying

to bash them off. One good thing about coming off, the stunned rider and exploding bike are still there!

While we're on the subject of race games, does anyone out there know anything about Turbo Esprit, from Durrell software? I'm dying to see this game on the 64. If anyone knows anywhere that's selling the game, I would be very grateful if you could let me know. Drop me a line care of *Your Computer* to get in contact.

Back to Super Cycle: yes, it does rate up there with Pitstop II, a definite MUST purchase if you're even remotely interested in race-games. On the off chance that you see a tape version, check it before you buy, as the game accesses the disk for every track, which would be rather annoying from tape. □



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## FTL MODULA-2 ..... \$100

You've probably heard of Modula-2, Niklaus Wirth's newest language: It's now available for a range of machines from JED Microprocessors. This implementation was written in Australia, and is being sold world-wide. Jerry Pournelle in *Byte*, (April '86) loved it: now it's available for MS-DOS systems as well as CP/M Z-80 systems, with 68000 based versions in the mill.

It contains an integrated full-screen editor with fast compilation and linking from libraries, which makes it more powerful than Turbo-P., and much easier to use on large programs. You get 1 meg of software on three full disks, with full sources of the editor and many other modules and utilities. It produces fast, PROM-able code which closely follows Wirth's third edition, with 8087 and LONG support.

## MTBASIC Multitasking BASIC Compiler ..... \$125

MTBASIC is an easy to use BASIC which allows interactive program writing and checkout, followed by easy production of a PROM-able COM file on disk. The multi-tasking allows time or interrupt task switching, ideal for process control where operator I/O and communication occurs while the control work goes on. (MT8087 \$160)

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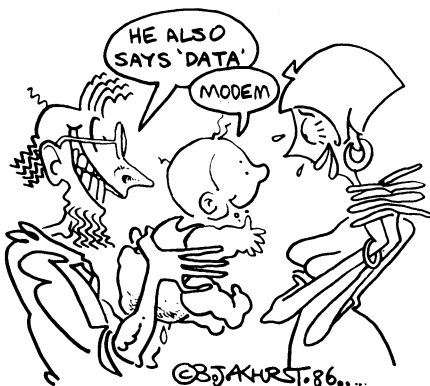
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BEFORE LISTING THE changes for this month, an explanation of what happens when a registration is received might be in order: first, they are all put into a folder until the next the next release of the Pamslist is due, this is done because if a new list was issued every few days administration of it would become impossible (and if they weren't put into a folder, they'd get lost).

Right, now when the release is being made up all the registrations are checked. Unless I can make modem contact or satisfy myself otherwise that the system details are valid, the registration is not processed. Enough wrong information gets into the listing even with this checking, that I shudder to think what would happen without it. So — if you've registered, but I haven't been able to contact you, then *contact me*.

I'd also like to mention that it is no use abusing me if details are not always up to date, I am at the mercy of people letting me know about changes and the like. If I rang every board in Australia with every release: a) it would take forever, b) I can't afford that sort of telephone bill c) sysops should let me know if they change details, (I haven't yet perfected mind reading).



## AED-PROPHET PAMS List Updates

### ACT

□ACT Amiga Users Group: (062) 58 4055, sysop: Mike Hurst Meyers; V21/V22/V23; 24 hrs daily; Mem/LVA.

□MICSIG: (062) 85 1026; sysop: Ross Elliot; V21/V22/V23; 24 hrs daily; public.

### NSW

□Australian Pick Users' Bulletin Board: (02) 631 8603; sysop: Kurt Johannessen; V21/V22/V22bis; 24 hrs daily; Reg/VA.

□Comm Link KBBS; (02) 875 4817; sysop: Michael Hayter; V21; 24 hrs daily; Reg/VA.

□Paragon: (02) 597 7007; sysop: Jennifer Allen; V21/V22/V23/V22bis; 24 hrs daily; Public.

□Samilon Fido-net: (02) 80 3681; sysop: Brian Houlahan; 24 hrs daily; Reg/VA.

□Software Tools Remote Fido-Net; (02) 449 2618; sysop: Bill Bolton; V22/V22bis; 24 hrs daily; Public.

□Your Computer BBS: (02) 669 1385; sysop: Andy Farkas; V21/V22/V23/V22bis; 24 hrs daily; Mem/LVA.

### Corrections:

Bee-Hive BBS: (02) 520 5181

Computer Connection: (02) 528 8968

Frontier Systems: now called Warringah BBS; (02) 977 0323; sysop: Brian Wilde.

### Off-line:

Aus Talc Fido-Net — Status Unknown

### Victoria

□Bayside Fido: (052) 51 4110; sysop: Paddy (?); V21/V22/V23; 24 hrs daily; Hours (?).

□Cycom: (03) 727 1018; sysop: Darren Huyson; V21/V22/V23; 1800 to 0600 daily.

### Corrections:

Abacus RCP/M is a Public Access system

### Queensland

□Datanet Fido: (07) 356 4541; sysop: Bill Bowden; V21; 24 hrs daily; Public.

□Soft-Tech Fido: (07) 203 6864; sysop: Alwyn Smith; V21/V22/V23/V22bis (and Bell); 24 hrs daily; Public.

### Corrections:

Brisbane Experimental RCP/M (BEX2): (07) 808 2125; sysop: Rick Dalley.

Hotline also supports V23 & Bell 202: Logon using V21 and request speed change.

Kangaroo TAFE: (07) 393 1763; sysop: Troy O'Malley; V21/V23; Mon to Fri, 0900 to 2200; Sat & Sun 24 hours.

### Off-line:

ACEA: Status Unknown

CoCo: Status Unknown

MSL: Status Unknown

Telegold: Status Unknown

### Tasmania

### Corrections:

Tassie Bread Board System: (003) 26 4248; V21/V22/V23/V22bis; Reg/LVA.

The information and lists are always prepared with care, and are presented in good faith from information provided by various sources. Latest listings are always available from the following points:

ACT: (062) 58 1406 PC Exchange RIBM  
NSW: (02) 628 7030 Prophet BBS

(02) 628-5222 AED-Prophet

VIC: (03) 819 5582 National BBS

QLD: (07) 263 7070 AMPAK RCP/M

(07) 38-6872 Hi-Tech BES

SA: (08) 260 6222 The Electronic Oracle

WA: (09) 370 1855 Nemo Multiple BBS

Please report any changes or new listings to: Australian PAMS Co-ordinator, Prophet Bulletin Board, PO Box 41, Emerton 2770. Electronic address: ACSnet prophet@runx; Teledata prophet; BBS (02) 628 7030. □

NOW AND AGAIN gems from the public domain are found in the most unexpected ways. This month's find is ADVBAS, a library of assembler routines for linking with Compiler BASIC, which cover disk, keyboard, string, video, checksum and other functions.

### Video

All the disk, string and keyboard functions are valuable extras, but the additions to the video capabilities of BASIC are enough to put the sparkle back into the eyes of any programmer.

Filling a screen with text using interpreter BASIC allows the user to see each character written. Compiler BASIC is faster, but screens are still visibly written line by line. Qprint and Xqprint are two lightning-fast routines for writing to the screen, apparently bypassing DOS function calls.

Qprint and Xqprint both incorporate the equivalent of locate and write strings to screen at a selected location. They are so fast the whole screen makes a snap change, all lines seeming to be written simultaneously. In addition, Xqprint allows selection of foreground and background colors for the string being printed. The manual suggests that, as a result, Xqprint is a fraction slower than Qprint, but I could not detect the speed difference, and in any case both are far faster than using Print in interpreter or Compiler BASIC.

Want to save whole screens to an array, and restore them to a the monitor? Want to recover a single line from a saved screen? Three more video routines, ScrSave, ScrRest and GetLine are for you. ScrSave and ScrRest, as their names imply, save screens to an array and restore whole screens from an array. GetLine recovers an individual line from a saved screen, and puts it in a string variable, and also sets an integer variable to the string length. The speed of these routines is amazing.

There are many other video routines. BkSpace gives a destructive backspace at the cursor location. ClrEol clears from the cursor to the end of line. DelChr and InsChr delete or insert a character at the cursor while adjusting the rest of the line to the right of the cursor.

Some rudimentary windowing is also available. Scroll and BkScroll are routines which work on selected portions of the screen.

All the video routines are fast and simple to use. A colleague of mine who had a

major speed problem in a package he was developing has included these pieces of public domain code, completely solving the screen-response problem.

### Disk Functions

Early BASIC compiler versions did not support subdirectories. Buying a new compiler to prepare your own software, commercial or otherwise, for DOS 2.xx was a rather expensive business. With ADVBAS, it is possible to create programs to run under DOS 2 (or later) without having to update compilers.

MakeSub creates subdirectories, DelSub removes them, GetSub returns the default directory in a string variable, and SetSub changes the subdirectory. It's easy to determine the default directory in operation when your program is executed: save it while the program runs, allow use of other subdirectories, and restore the original directory before exiting.

Other disk and file routines get or set the default drive, determine free space on a drive, get the file date and time, and get or set the file attributes.

### Keyboard

Getkey reads the keyboard, compares the keystrokes with a selected string variable and throws away any character not included in the string — a fast and efficient range-checking method.

### Strings

BASIC is renowned for its built-in string-manipulation routines. Want to add a few more? UpCase converts all characters in a string to upper case. LoCase does the reverse. MultiAnd, MultiOr and MultiXor AND, OR or XOR all characters in a string with a bit mask. Strip deletes all occurrences of a specified character from a string. StripRange deletes all occurrences of a specified range of characters from a string.

More string functions abound. LRotate and RRotate can rotate a string left or right. Reverse does just that to a string, with the sequence of all characters in a string becoming the mirror image of the original sequence. Yet another function sets up a translate table. ADVBAS can also extract substrings separated by selected delimiters from a larger string.

### Miscellaneous Routines

Miscellaneous routines calculate checksums and CRC values for use in communications and other programs. GetDOSv determines the DOS version — quite im-

portant if the program might want to change directories and should first determine if it is running under DOS 1, or if it wants to use some function only available in a specific version of DOS and must work its way around the omissions when running under another version.

ReadBitF and WriteBitF allow significant data compression. They do this by using word lengths varying from one to eight bits, and combining these into 8-bit integer arrays, with potentially great savings of space.

### Testing

The author of the routines notes he has done his testing partly on IBM BASIC Compiler version 1, and partly on IBM BASIC Compiler version 2 and QuickBASIC version 1.

My testing was done mainly using Microsoft's QuickBASIC compiler version 1.02, and some confirmation testing was done with IBM BASIC Compiler version 1. The compiled routines were run with a CGA board/RGB monitor combination, and with IBM mono monitors driven by Hercules and IBM mono display adaptors. All routines worked as expected, with no apparent bugs ... except for two video routines designed to use ANSI.SYS. These two routines, MPrint and MPrintC, are not amongst those lauded earlier.

### Using ADVBAS

Using ADVBAS could not be more simple. When writing source code, just incorporate the name of the desired ADVBAS routine with the appropriate syntax and string or integer variables. Compile in the usual way. When linking, LINK.EXE calls for the name of the library to be used. Just specify ADVBAS, and it will be linked with no problems.

### Availability

ADVBAS is user-supported software, written by Thomas Hamlin III, 6812 Sydenstricker Road, Springfield, VA 22152. It has three files ADVBAS.DOC, 33857 bytes, 12-13-85, ADVBAS.LIB, 22528 bytes, 12-12-85 and ADVBAS.NEW, 12-13-85 and 669 bytes. Copying and distribution by users is encouraged, and satisfied users are asked to donate US\$25.

My copy is version 1.9, and was distributed with a commercial screen-builder/B-tree package by a different author — an interesting example of combined distribution. User groups may have copies, and I've put a copy on the YC bulletin board.

□



**Mixing with Macros**

WHEN BEAGLE BROTHERS first released Macroworks, I was fortunate to get a copy direct from the States. On paper, it looked so-o good: an Appleworks answer to Smartkey or Borland's Superkey for the IBM.

These other programs use the 10 function keys on the left-hand side of the IBM keyboard as 'softkeys'. They can be redefined by the user to provide whatever text (words or phrases) or command sequences you want — they are 'macros', for want of a better word.

Of course, the old Apple II doesn't have a spare set of 10 keys on the left-hand side of the keyboard, but what it does have is a relatively unused 'solid apple' key to the right of the space bar in the IIe and IIc models.

By using this key in conjunction with any other normal character key, you can define a large number of special functions. The Beagle Brothers ads suggest, for instance, that you make Apple-N type your name and address, and Apple-X save all your Desktop files, nonstop.

These seem useful, indeed intelligent things to do. In very short order I had created a one-keystroke entry that typed 'Yours Faithfully', added a few carriage returns, then my name and address; so, when I get near the bottom of a letter, just one keystroke finishes all the routine work.

Following through the Macrowork manual, I also built a macro to delete a word forward and another to delete a whole line. If you want, you can design a macro that takes everything you delete over to the clipboard so you can recover it again if needed.

Most macros are used for word processing, but Macroworks can be used to set up things like a range of spreadsheet column widths. It's as easy as editing a word processor file.

The whole idea of macros was made famous by IBM programs like Lotus 1-2-3. Smartkey got in on the act early, and for a while every IBM PC in our office ran Smartkey. I should have noticed that they don't anymore!

*What we are doing here  
by introducing macros is  
analogous to adding the  
doodads and dials from the  
cockpit of a Jumbo 707 to  
an about-town station  
wagon. We are  
unnecessarily  
over-complicating the  
controls.*

**De-Standard-Dies**

When you think about it, what we were doing was taking our 'universal' machines, with carefully nurtured standardisation, and converting them to be one-of-a-kind. If I used one machine in the office, the F3 key might delete a word forward, but if I used another the same key might print out the contents of memory triple-spaced in a 40-character column. You never could tell.

'Standard interface design' is what the engineers so ponderously call this, and we yell at the manufacturers all the time because they don't get together and create a universal pattern from which all personal computers could be cut.

A standard interface is what makes it possible for me to hire a car anywhere in the world, and be able to drive it without needing a three-week conversion course — the clutch is on the left, the brakes are on the right next to the accelerator. You only custom-design controls when you have to; for instance, when someone is a paraplegic, and can't use the clutch on the floor.

Of course, I thought this lack of standardisation with Macroworks wouldn't be a problem at home with my dedicated Apple IIe, which I, and only I, use. But I didn't allow for two facts.

The first is that I don't use routine keystrokes nearly as much as I thought I did. At the end of some letters 'Yours Faithful-

ly' sounds fine, but on others it sounds far too formal. The solution was to hit the Apple-N key, then backspace to remove and replace the paragraph.

I might be slow on the uptake, but it didn't take me too long to realise that on average I was wasting more time making the changes than I was saving with the macro.

As far as the forward-character-delete and the line-delete functions were concerned, these just added to the confusion. For me, they are great in theory, but unused in practice. I find I delete characters from the back, not from the front, for the simple reason that I discover mistakes after I type them, not before.

And although Appleworks already allows me to hit the normal open-apple-D key to delete a line or a paragraph, I still tend to do it the hard way by holding the delete key down for a few seconds. The auto-repeat does the work, while I have a few seconds to think.

What we are doing here by introducing macros is analogous to adding the doodads and dials from the cockpit of a Jumbo 707 to an about-town station wagon. We are unnecessarily over-complicating the controls.

**Mind Over Macro**

I tend to think now that the main advantage of macros is psychological rather than actual — you think you've got something super, even if it doesn't do much.

The second problem with Macroworks on my Apple IIe was that it couldn't be co-resident with Pinpoint. Both these programs modify the Appleworks start-up disk, so you can have one but not both. I opted for Pinpoint because it has the in-built communications module, and this saves me more time than anything. And if Pinpoint's Spelling Checker worked at more than a snail's pace, this would have been even more reason to abandon Macroworks.

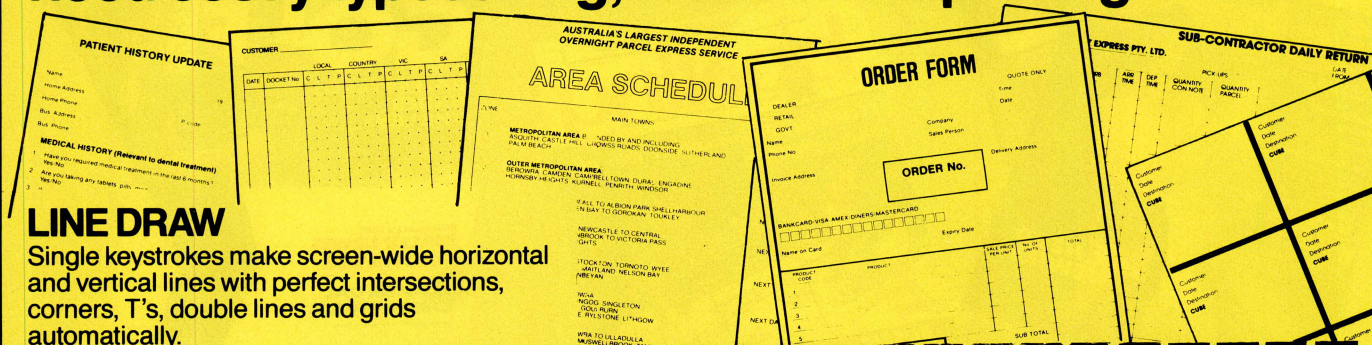
Quite frankly, the lesson learned from this exercise is an old one. The KISS principle, "Keep it Simple, Stupid" applies as much to macros as it does to conventional hardware and software. □



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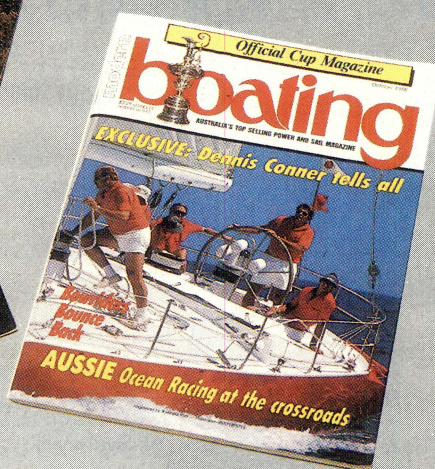
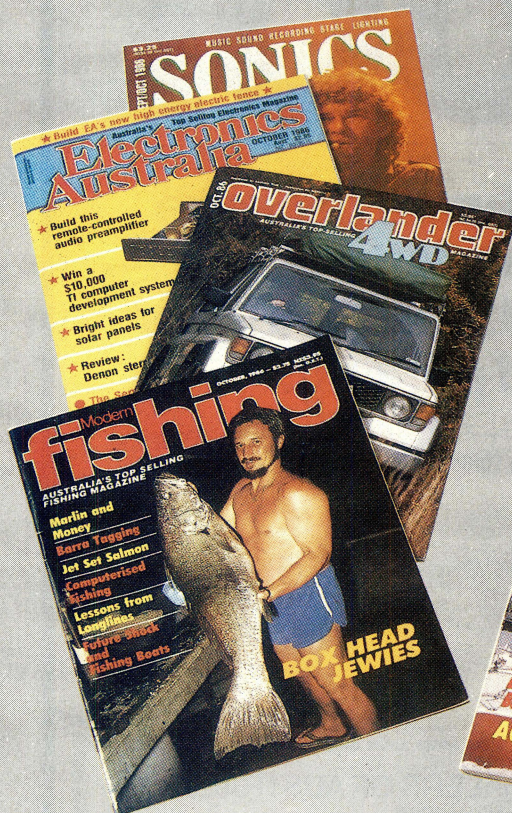


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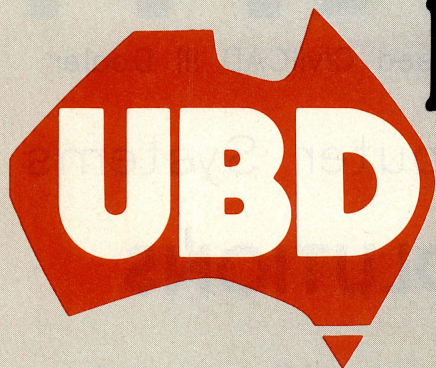


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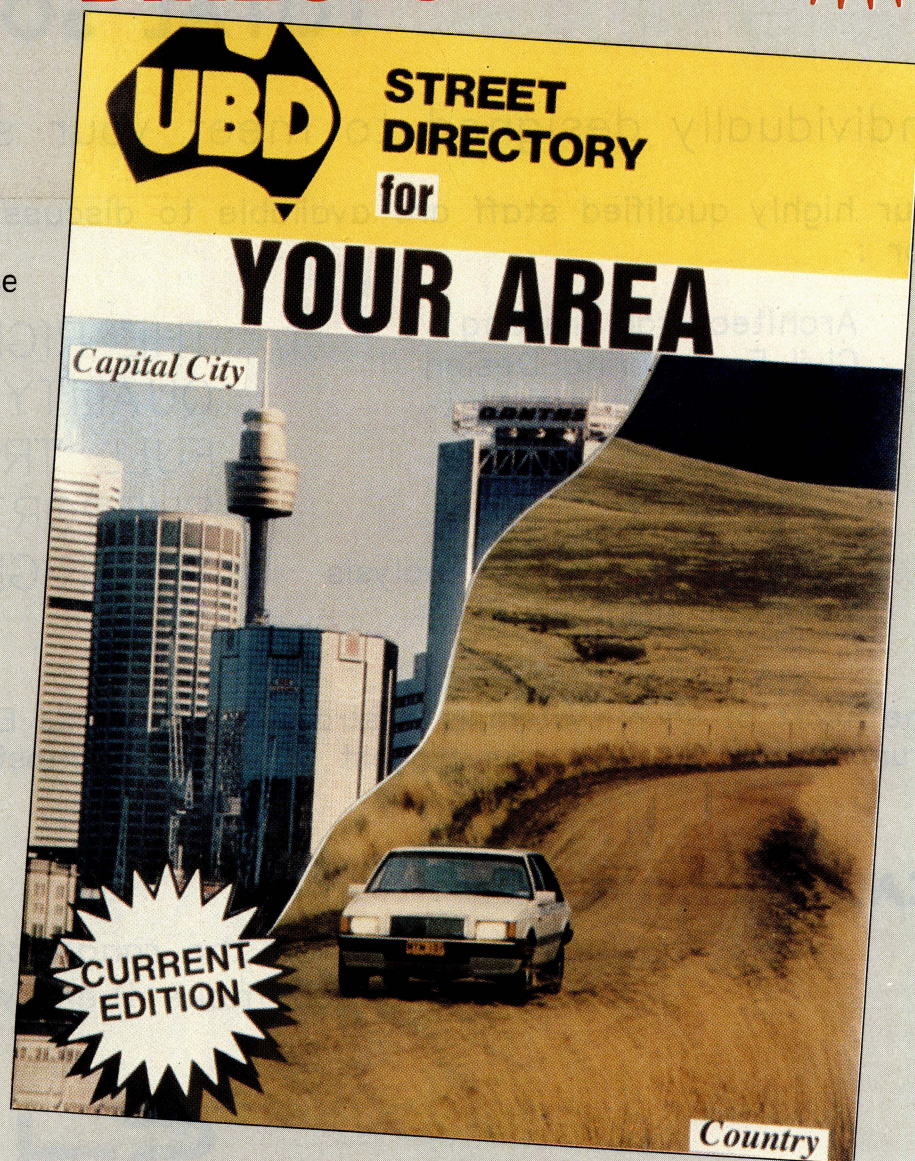
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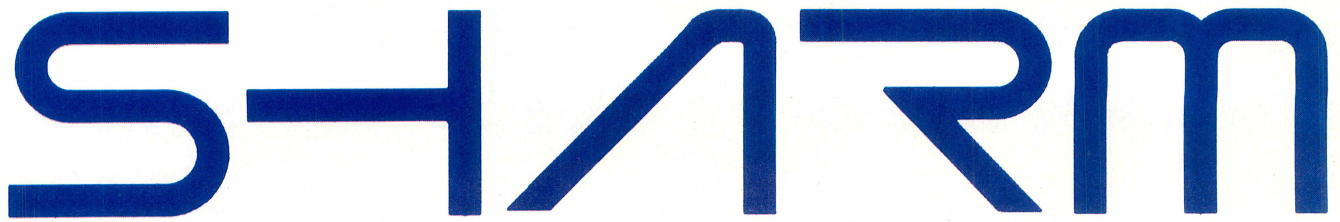
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I HAVE JUST RETURNED after two months in Europe and nearly all my friends' houses now boast either a BBC or an Amstrad. It will be interesting seeing how Microbee UK takes off. Microbee have registered the name — but have not visibly done much more. Friends there reckon that if it kept Aussie price levels and set up good local support it could do well. It could offer more flexibility and be more up-gradable than Amstrad and would undercut the BBC in price — although with the BBC's entrenched position the British educational system will be a hard market to break into.

### Re-using Wordstar Files

Howls of Anguish! Once more I have hit the reset key while in Wordstar. Once more my latest article has vanished into oblivion. Some machines hide their reset button but not Microbee. They have just put a two second delay on the reset key before total destruction strikes.

I have longed to see it moved away to the top of the keyboard — next to backspace for example. As it is, it's next to another key that is also held down often for a long time (the shift key) and woe strikes you if you get the keys muddled up!

There are currently three remedies that I know of — three re-incarnation spells that can raise the dead. Fortunately they are all in the public domain.

One is Unerase.Com. This has been around for some years and has only sometimes worked for me. I have just tested it on a Wordstar file deliberately sent into oblivion. It left it in oblivion — said it couldn't find it.

Many times I have been tempted to send Unerase.Com itself into oblivion — I have only spared it because sometimes it has worked.

Then, last year, another program appeared. WSFIX.COM. This is ingenious. It allows you to page through all the contents of your machines memory saving the pages you wished to save. The first copy I got of this would page through memory but crashed the machine when I tried to save. I didn't banish it — it was absolutely invaluable to have such easy access to memory.

Many a time I copied by hand, text I had accidentally erased. It is also good for spying on the innards of programs — this way I found undocumented commands in the Microbee Shell program. I recently copied it again — and it now seems to

save nearly all the time. Once I saved only to have the machine crash. A reset — and the file was still saved. It had been stored on disk before it crashed.

It does not save clean copies. You will have to edit them again as it records bits of odd information that did not show up in your deleted file. This can be an awkward task.

Now a third program has appeared, RTW.COM. This is short for 'Recovers Turbo or Wordstar.Com'. This appears to be a medically competent program. On first tests it recovered murdered (by resetting) Wordstar files and re-incarnated them perfectly. It will recover any Wordstar or Turbo program. However, yesterday it failed when I needed it when I mucked up a file (not by resetting) — so it isn't 100 per cent competent. You run it (as also the others above) immediately after you lose a file. It doesn't matter if you have to change disks and drives to find the program — just don't run another program.

RTW will ask you if you lost a Turbo or Wordstar file. You answer T or W. It immediately produced the name of the file and asks if you want to keep the same name for it. You say no or type in a name — and it saves in a jiffy.

### Write Hand Man Refreshed

In my article *Keeping The 8-bit CP/M House In Order* in January's YC, I told you how you could have a whole household of servants hidden in a backroom behind your 8 bit screen — hired from a program called Write Hand Man.

What I did not mention was that three versions of Write Hand Man are supplied. The simplest does not refresh the screen — it leaves a blank area where it appeared. You have to scroll the screen up and down to make it 'refreshed', to fill in the characters. The other two versions do refresh the screen — but they tend to crash Wordstar on the Microbee.

I believe this is related to the way Wordstar has been turboed up to run at amazing speeds on the Microbee by having a very fast screen addressing system.

Thus I use the simplest form of Write hand Man — and make this auto screen 'refresh' with Qwikkey.Com, another memory resident program. Qwikkey is a 4 Kbyte public domain program that allows you to change any keyed character to a string of commands or text.

I set one of the keys I don't use much to mean ESC ESC ESC ^C^R. Then I can go

from the notepad of Write Hand Man straight back into the document where I left it with the screen refreshed by a couple of lightning fast scrolls.

There is a possible bug in the combination of Write Hand Man's function key utility and Qwikkey. I haven't fully tested it — but I was dismayed yesterday when the entries under WHM function keys appeared in the midst of one of my Qwikkey commands.

I think it was the by-product of working on a very hot day. computers can be freaked by such conditions and odd things happen. It certainly did not happen when I was using the WHM function keys to cut and paste text in cool weather last year. Maybe it is because I put a command sequence on the function keys?? Worrying over such things can waste much time.

I should mention that the automatically refreshing form of Write Hand Man as supplied by its distributors works perfectly with most programs on the Microbee including dBase II and Sweep — but not with Wordstar.

### Speed Loading Wordstar

For those of you who have Qwikkey, it can speed load Wordstar and even operate a sequence of commands within it to get you up and going. But I have found that sometimes it hangs fire and needs a prod along. It also operates at such speed that it can shoot straight past a command.

In theory this sequence should work: WE^mD. This should start off Wordstar with it already asking for the file you wish to edit. I have Flashprint!! and WHM so I want both up and running. WHM on^mflash^mD should work in theory. Well it doesn't!

So what I do is to put in double returns (^M^M) after a command to give it a kick along, then a space to allow it to get its wind back again, then the commands within Wordstar backed by a single ^M and spaces. This seems to work even on hot days. My current command line in Qwikkey is —

whm a:on^M^Mflash^M^M lm^M d  
This turns on Write Hand Man, starts Flashprint!! which loads Wordstar within itself, logs onto the Memory drive (more commonly called a Ramdisk, thou' Microbee has some extra automatic features) and asks which file you wish to edit.

You should experiment for yourself until you have it just the way you want.

Happy computing! □



ONE OF MY MORE time-consuming past-times is exploring ways to make the computer produce "artwork" from a mathematical formula. This insidious habit began a couple of years ago, simply plotting families of standard functions in two dimensions. Enthusiasm for these faded when I found how to draw graphs in three dimensions and for months my office walls were papered with wire-frame 3D plots of all manner of exotic functions.

As the pages yellowed and we moved house several times, interest in computer art waned and looked like dying out altogether, especially after writhing with frustration for hours and hours while waiting for Mandelbrot sets to be calculated... even the BBC's speed isn't up to this sort of activity! A K Dewdney's 'Computer Recreations' column in the September 1986 issue of *Scientific American* provided a new excuse for me to fool around making more pretty pictures.

That article describes some delightfully simple alternatives to Mandelbrot's approach. They give similar results without the agony of waiting for the long calculations usually required. Before we get too deeply into things, I'll first try to explain from a programmer's point of view what a Mandelbrot set does. Essentially it is a set of numbers (which can be represented by points on the screen) based on a single mathematical function. The output of the function is put back into itself over and over again for each region on the screen. When the output finally reaches a value of 2, you use the number of repetitions it took to reach 2 to determine the colour of that point on the screen. (There is a lot more to it than this, of course. If you aren't afraid to stretch your brain a little, a good starting point is Mandelbrot's book *The Fractal Geometry of Nature*.)

This is fine in theory, but the function used to generate the Mandelbrot set contains complex numbers (that is, numbers having the square root of -1 as a component). While this is no great problem to program, it takes quite a bit longer to calculate than, say, the sum of two integers: with all those iterations you suddenly find four or five hours have passed producing just on picture. Not a great spectator sport!

The approaches suggested in Dewdney's article don't use complex numbers at all. They plot the first point on the screen in a colour determined by the result of applying a good number to a simple mathematical function, so if the inte-

ger value of the result is 3 we plot colour 3 at that point. The result is applied to the function again to get the value of the next point and so on until the entire screen is filled.

Before we try this let's try plotting a function in terms of colour. A suitable function is that of a circle ( $x^2 + y^2$ ). Look at the following listing -

```
10 MODE 1:VDU23,1,0;0;0;0;
20 FOR X%=0 TO 1023 STEP4
30 FOR Y%=0 TO 1023 STEP4
40   C=SQR(X%*X% + Y%*Y%)
50   GCOL 0,C MOD 4
60   PLOT 69,X%,Y%
70 NEXT Y%
80 *SAVE :2.PIC 3000+5000
```

As we're using mode 1 there will be four colours plotted. We'll not use the full width of the screen for reasons that will become clearer later. The plotting colour is derived from the value of c in lines 40 and 50. You might think that this approach would create a random pattern, but such an assumption neglects the habit that mathematical functions have of providing unexpected pleasures.

The effect is certainly pleasing to the eye. The result is saved in a file called PIC. This will have to be renamed after each plot. Experiment with other functions in line 40: just about anything goes!

Now let's get daring and introduce the seed number into the program. Modify the three lines as shown in the following listing, then run the program.

```
5 INPUT "Seed "C
40   C=Y%-SQR(ABS(X%*X%+Y%*Y%*C))
50   GCOL0,ABS(C MOD 4)
```

The function in line 40 can be just about anything as long as the variable c appears in it. Experiment with trig and exponential functions to your mind's content.

Although not exactly along the lines suggested by Dewdney, this listing provides the material that could well be useful if the kids decide to wallpaper their cubby house -

```
10 REM Wallpaper maker
20 MODE1:VDU23,1,0;0;0;0;
30 side%=1023:L%=320:last%=-1
40 FOR I%=1 TO L%:I=I%/L%
50   x=side%*I
60   IF x DIV4=last% GOTO 140
70   FOR J%=1 TO L%
80     y=side%*J/L%
90     C%=x*x + y*y
100    GCOL0,C% MOD 4
110    PLOT 69,x,y
120  NEXT
130 last%=x DIV 4
140 NEXT
150 *SAVE PAPER 3000+5000
```

As line 100 stands this will print on the screen in four colours. Should you intend to dump it to your printer you may like to alter it to a two colour mode (MODE 00 in line 20, set L% to 640 (line 30) and change lines 60, 100 and 130 as follows:

```
60 IF X DIV2=last% GOTO 140 100
GCOL0,C% MOD 2 130 last%=x DIV 2
```

By changing the MOD value you define the number of colours that will be displayed. Rather than plotting the same function a number of times, I suggest you plot it once in a four color mode, save it and then use this simple utility to play around with the colours -

```
10 MODE1
20 *LOAD PAPER
30 REPEAT
40   PRINTTAB (33,1);"Color ";
50   key=GET : VDU key
60   PRINTTAB (33,3)"Shade ";
70   color=GET:VDU color
80   VDU19,key-48,color-48;0;
90 UNTILO
```

It's a simple matter to an option to call your chosen printer dump utility inside the loop. This utility also demonstrates the ease with which colours can be twiddled on the BBC screen using the VDU19 command.

If any readers come up with particularly unusual or attractive functions to use in these or similar programs, please send them to me and I'll publish a list of them in a few months' time. A further source of stimulating ideas on the topic of functions that feed on themselves is chapter 16 (Mathematical chaos and strange attractors) of Douglas Hofstadter's superb book *Metamagical Themas*, published by Penguin. Be warned: if you have even the slightest inclination to fool around with logical, mathematical or musical ideas this book is not only intoxicating, but addictive!

Reader's so inclined might also refer to Phil Grouse's *Exploring the Mandelbrot Set* in *YC's January 1986 Yearbook*. □

### Software Protection

EVERYONE KNOWS THE difference between hardware and software. The hardware is the machine and the software is the program you need to make the machine do something, right? On the surface it all seems simple enough, but that one sentence definition is actually the cornerstone of one of the major dilemmas facing the computer industry.

Think about that next time you visit your local computer shop. If you purchase a printer or disk drive, you are exchanging money for a physical object. You can touch it. You can take it away, modify it, do what you like with it. It's yours. Not so if you purchase software. Sure, you do take physical possession of something — a box with a few bits of paper in it and a floppy disk or cassette — but that's not the reason you bought it. You were after the software encoded on that disk or tape. In other words, you've purchased information.

Unlike hardware, information has the peculiar characteristic that once created, it can be very easily copied or reproduced — and that same information is very expensive to create. It requires a great deal of skilled and expensive labour, but if the product of that labour is easily copied and exploited by others, where is the incentive to develop it in the first place?

Everybody in contact with computers appreciates the benefits of having a wide and diverse pool of software. The manufacturers need it to sell their hardware, the users need it to make their machines useful. The dilemma is that while everybody needs software, nobody feels particularly responsible for ensuring its creation. Software houses take risks and invest money in the hope of making a profit, but they have only the copyright laws to protect their investment.

The laws may be useful in preventing commercial piracy, but they are impossible to police when it comes to individuals copying programs for friends and acquaintances. This type of copying is said to account for millions of dollars of lost revenue for the software houses. To combat it, they have resorted to incorporating mechanisms into their programs which make them difficult to copy. They call this software protection, but what they really mean is royalty protection.

Although these arguments have merit, the net effect on legitimate paying end-users (you and me) is to deny us *our* software protection. All computer media are susceptible to mishap or wear and tear, and believe, me a corrupted master disk with no backup is painful. A simple slip of the coffee cup onto your wordprocessor master can deny you access to months of past work — and it's very inconvenient waiting for a replacement if you have a deadline. Having a backup would prevent this sort of thing, and once upon a time software houses commonly provided two master disks for just such conditions. Alas no more, and worse still, their royalty protection schemes are designed expressly to prevent the making of backups.

### Backup Programs

Commodore owners suffer especially because the standard 1541 disk drive is prone to be mis-aligned by some protection methods, and since disk mis-alignment has become such a common problem I feel it's time to shed some light on ways to get around it.

Essentially these ways revolve around using copy programs. Sure, if you can make backups you can make pirate copies, but I take the view that if a program is good enough to use then it's good enough

to pay for. (It's like voting with your wallet). Essentially the backups fall into two categories: those that are disk based and those that are memory based.

Disk based copiers work on the principle of making an identical copy of the original disk. They copy every track and sector, including hidden extra tracks, and they copy all disk errors as well. Some are more successful than others, but they all have two drawbacks. Firstly, they do not eliminate the disks protection scheme, they only copy it, so your drive still gets a hammering from the protection. Secondly, they are pretty useless when attempting to back up cassette programs onto a disk.

Memory based copiers ignore the disk altogether preferring to copy the program *after* it has been loaded into memory. Backups made this way are free of disk protection and often have turbo or fast load routines incorporated to speed up loading times. Many of them can back up cassette programs as well. Memory based copiers have been on the market for about 18 months, but in that short time they have become increasingly polished and sophisticated.

Freeze Frame MkIII is one of the latest of this type and it's most impressive. I tested version III.b — it's a cartridge program and that works on the standard 64 or

### C64 Fix Outline by Geoff Robb

```

100 REM PROGRAM TO STEP HALF A TRACK
110 REM BY G. A. ROBB - DEC 1986
120 OPEN#15,8,15:COUNT=0
130 PRINT#15,"M-W";CHR$(8);CHR$(0);CHR$(2);CHR$(18);CHR$(0)
140 FOR I=0 TO 33:READD
150 PRINT#15,"M-W";CHR$(1);CHR$(4);CHR$(1);CHR$(0)
160 NEXT
170 PRINT#15,"M-W";CHR$(1);CHR$(0);CHR$(1);CHR$(224)
180 PRINT#15,"M-R";CHR$(1);CHR$(0)
190 GET#15,E$:E=ASC(E$+CHR$(0))
200 IFE=1 THEN PRINT"DONE,OK":CLOSE#15:END
210 IFCOUNT=100 THEN 230
220 COUNT=COUNT+1:GOTO 180
230 INPUT#15,E$,T,S
240 PRINT#E$;T;S;"FAILED":CLOSE#15:END
250 DATA 174,0,28,232,138,41,3,133
260 DATA 20,173,0,28,41,252,5,20
270 DATA 141,0,28,160,5,162,255,202
280 DATA 208,253,136,208,250,169,1,76
290 DATA 105,249

```



## The Machine Language Part of the Program -

```

0400 ae 00 1c 1dx $1c00 ; disk controller - bits 0/1 control
                        head movement
0403 e8          inx          ; increase value
0404 8a          txa
0405 29 03      and #$03      ; isolate bits 0 and 1
0407 85 14      sta $14       ; unused ram location
0409 ad 00 1c 1da $1c00
040c 29 fc      and #$fc      ; isolate remaining bits
040e 05 14      ora $14       ; recombine to form new value
0410 8d 00 1c sta $1c00 ; restore in control port
0413 a0 05      ldy #$05      ; delay loop - to
0415 a2 ff      ldx #$ff      ; allow for head to settle
0417 ca          dex
0418 d0 fd      bne $4017
041a 88          dey
041c d0 fa      bne $4017
041d a9 01      lda #$01      ; 'job successful' flag
041f 4c 69 f9 jmp #f969 ; shut down drive and exit

```

on the 128 in 64 mode. It's menu driven and very simple to use. It powers up to the main menu with white text on a red screen. You simply load in your program and run it until you get to the point at which you want it saved. You then press the button on the cartridge and 'D' for disk or 'T' for tape — very simple. Both disk and tape saves have turbo routines incorporated, although there is a way to save to disk without them. Backed up programs can be loaded with the Shift/Run key (tape) or Load "name",8,1 from disk.

Freeze Frame also does a good job in converting cassette programs to work on disk. It can deal with cassette programs that load in multiple parts, which is a first for this kind of copier. Disk backed-up programs are in three or four parts, and seem to take up more disk space than the original version, even when backing up unprotected software. This is because it is saving all of the memory that has been changed by the program.

Freeze Frame does a few other tricks as well. It can format a disk in 20 seconds and copy files at six to seven times normal speed. This utility is really easy to use — you select the files you want to copy by answering Y or N and press RUN/STOP to make it happen. If you've got more than one drive you can make multiple copies as

you go. This last feature will be of interest to User Groups when making up public domain disks.

The instructions are concise and surprisingly comprehensive. There are plenty of trouble-shooting tips, and even a description of the one type of cassette program that it *can't* deal with. At \$99.00 it is good value. It's available from South Australian Micro Accessories (08) 287 0190. (They also manufacture and distribute Dolphin Dos, a speed up kit for the 1541 — more on that next month).

### 1541 Fix Revisited

In December I mentioned a quick fix for a 1541 jammed in half track mode — tell the drive to format a disk when you haven't inserted one. I should have pointed out that this is not the sort of thing you should do unless you have to, because if you do it too often it can mis-align your drive. On the other hand, if your drive is already playing up you've got nothing to lose and it might well save you a trip to the repair shop.

Geoff Robb of Sale has an alternative fix to the problem using software. If you use this method I would suggest you keep a copy of the listed program on cassette, because you might not be able to load it from disk when you need it most. Many

thanks to Geoff; I'll let him tell you how it works —

Briefly, this program reads into one of the disk drive buffers at \$0400 a machine language program that steps the read/write head out half a track by increasing the value that is held in the disk controller \$1c00. An 'Execute' command (224 or \$E0) is then placed in the job queue at \$0001. The drive then executes this program directly.

To find out whether this has improved things, I would suggest that the DOS Wedge is loaded previously, and then the directory can be loaded a couple of times from a fairly full disk after running this program. This should show by the flashing red light when the drive is in half track mode.

Due acknowledgement is made to *Inside Commodore Dos* by Richard Immers and Gerald Neufeld, and to an article in the September 1986 edition of *The Transactor* entitled 'Format Track 36' by David A. Hook. □

## RIP's Poems VII

My grandfather came out in the first fleet,  
Diode in a 1401 he was.

On my grandmother's side there's talk,  
Though I've got my doubts,

Of a boiler tube of mercury at the Uni.

They met through the Union;

Fought for the microsecond cycle time  
and thirty volts on Sunday.

Kid's don't understand. Tradition's at risk,  
The youngest wants to be a Video Disk.

## RIP's Poems VIII

Flip flop.

You try five volts up your gate,

Not much fun. I can —

Flip flop.

It's not all bad, though,

I've got a good address,

Close to the bus,

Flip flop.

What's the point? I ask,

What's the use?

Flip flop.

Still, beats being a ROM.

- RLP



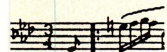
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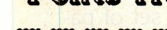
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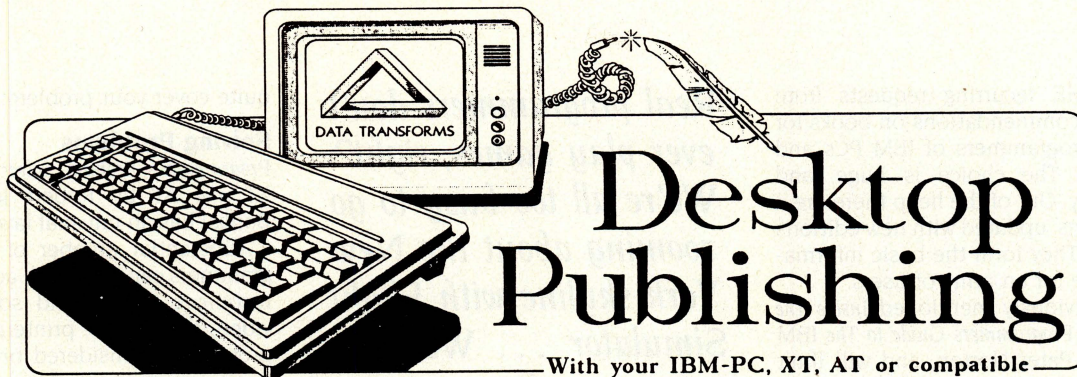


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ONE OF THE recurring requests from readers is recommendations on books for users and programmers of IBM PCs and compatibles. The choice is huge, and changes daily. Out of the heap there are a few evergreens, updated with new editions as required. They form the basic information resource for an army of users.

I have previously mentioned *Inside The IBM PC* and *Programmers Guide to The IBM PC*, both by Peter Norton, and will limit comment on them to saying that anything ever written by Peter Norton on the subject of IBM PCs is worth reading.

### Running MS-DOS

My first choice of a text for users, rather than programmers, of PCs is from Microsoft Press, *Running MS-DOS*, by Van Wolvert. Most MS-DOS manuals are arranged in the alphabetic order of commands, and have no tutorial structure. Many books for novices using MS-DOS stop at a relatively simple level.

*Running MS-DOS* bridges both gaps, taking a logical and straightforward path from the very beginning of using disks, through all the DOS commands in increasing order of use and complexity, and ending with the creation of some quite complex batch files.

### MS-DOS for Programmers

Programmers using high-level languages like BASIC or Pascal, and who are content to use only the capabilities built into their particular dialect, can survive with only their language manuals and textbooks. When there is a need to access DOS features outside a high-level language, as when reading or setting the system date or time from Turbo Pascal, detailed information on DOS is required.

Apart from the Norton books mentioned, there are three books I've found of interest: *Programmers Guide to MS-DOS* by Dennis J Jump (Brady Books), *MS-DOS Developer's Guide* by Angermeyer and Jaeger (Sams) and *The IBM Personal Computer From The Inside Out* by Sargent and Shoemaker (Addison Wesley).

Jump discusses the DOS system calls and interrupts, file and memory manage-

*Real programmers don't ever play games, right? We're all too busy to go zooming about the New York skyline with Flight Simulator ... Well, just in case you have a copy of this most entertaining diversion, I can recommend '40 Great Flight Simulator Adventures' by Charles Gulik.*

ment and device drivers in detail, with fragments of sample code for illustration — this is a reference book rather than a tutorial.

Sargent and Shoemaker is a combination hardware and assembler primer, again with details of DOS interrupts and so on. They take the view that the machine is a combination of hardware and operating system, and develop concepts of both in parallel. Again, assembler routines are included for illustration of the concepts.

The heavyweight of the trio is the *MS-DOS Developer's Guide*. Aimed more at systems programmers than applications programmers, this book tackles complex subjects in a remarkably simple and easy-to-understand fashion. A list of the main chapter topics will give an idea of the territory covered: they include modular programming, program and memory management, real-time programming, device drivers, 8087 and 80287 programming, programming for LANs, disk layout and file recovery, compatibility between MS-DOS versions, high-level languages and development tools. Get a copy when you find the answers in other books don't

quite cover your problem.

### Solving Problems

*Programmer's Problem Solver for the IBM PC, XT and AT* by Robert Jourdain (Brady Books) has an unusual layout. It identifies a substantial number of problems programmers can have with accessing system resources, timers and sound, keyboard, video, disk drives, printers and I/O. Each problem is considered briefly, and solutions are given at three levels — high, middle and low. The high-level solutions are written in BASIC, as this is available to almost all programmers. Equivalent code based on the BASIC can easily be written in other languages, including Pascal. Middle-level solutions are assembler routines using the DOS interrupts, while low-level solutions address chips directly.

### Graphics and Games

Real programmers don't ever play games, right? We're all too busy to go zooming about the New York skyline with *Flight Simulator* ... Well, just in case you have a copy of this most entertaining diversion, I can recommend *40 Great Flight Simulator Adventures* by Charles Gulik (Compute Books). Each adventure gives a set of parameters for location, altitude, speed, time and weather, and then starts a new scenario. Great fun, and a change from always taking off from that same airport.

More seriously, *Icons and Images* by Elmer Larsen (Compute Books) demonstrates the use of the various graphics command in IBM BASIC, and then gives 94 sample programs for various graphic images. With minor changes to the selected colours and screen pages, they will run on Hercules boards and HBASIC, as well as on CGA boards under BASICA or GW-BASIC.

### Availability

In Sydney I find computer texts more often than not to be found at Hotline Books, George Street, Haymarket; at Dymocks or the Pocket and Technical Bookshop (both in George Street in the city); and/or at The University Co-op Bookshop, Bay Street, Ultimo. Equivalent shops in other cities will also be able to obtain copies. □



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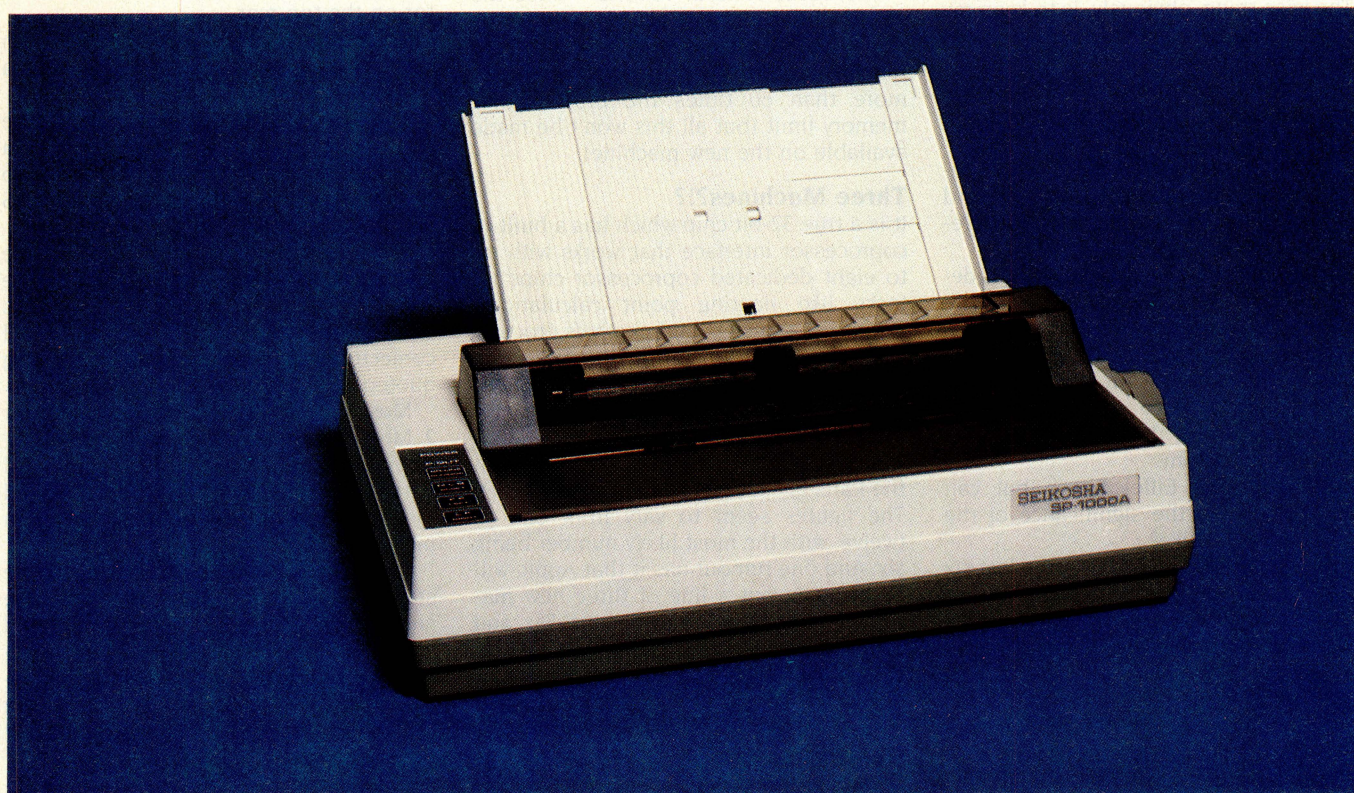
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**T**HE BIG DAY in the life of any Mac user is March 2. That's the day that Apple are announcing their new slotted Mac, also called the Open Mac or Mac Plus Plus. But until then all details are embargoed — although inevitably information has leaked out.

At the time of writing this spiel, I've yet to see anything definitive about the new Macintosh except that it is open architecture and coloured 'platinum' grey. But there's been rumours aplenty floating around the computer media.

Apple have a preview copy of the machine down in their headquarters at North Ryde, but if I go down and have a look at it, I'm not allowed to write about it until after March 2.

So I'm in a bit of a quandary. If I stick my neck out and tell you what I think the new Mac will be like, I am asking for it to be chopped off. Very shortly after this issue goes on the news-stands most of the details will be in the daily press, and you'll all be laughing at my mistakes.

The wise thing, obviously, is to keep my mouth shut, and stop those rumour-mongering fingers from flitting across the keyboard. In the words of Fawlty-Towers' waiter Manuel, I should be crying "I know nothing! I know nothing!"

But commonsense doesn't often correlate with computer journalism — and there's nothing like having a stab at prediction — so here goes:

First of all, the new computer is code-named 'Paris'. Apple's number two in the States is Frenchman Jean-Louis Gessee, and the rumours have it that he even has created some special internal stationary for the project workteam with a little guy on a bicycle and a drawing of the Eiffel Tower at the bottom.

Now I get the Eiffel Tower, but can someone tell me the significance of the little guy on the bike?

Every rumour I've heard over the last six months gives the codename 'Paris' for the open architecture Mac, but what bothers me is that I was told on dozens of occasions last year that the codename for the forthcoming Apple GS was either Jonathan, or Rambo. It turned out later that the real codename was 'Cortland' — so what are the odds on Paris? Still, I'll stay with 'Paris'.

I don't think there's any doubt that Paris is an open architecture machine, based around the new Motorola 68020 chip —

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Manuel, I should be  
crying 'I know nothing! I  
know nothing!'*

even President Sculley admitted that such a beast was in the pipeline, and Apple need to keep ahead of the IBM line which is now introducing 386-based machines.

The 68020 runs at 16 MHz — twice the speed of the present 68000 — but it is more than just a faster clone. It can theoretically address up to four gigabytes, more than 60 times the present Mac memory limit (but all this won't be made available on the new machine).

### Three Machines?!?

It is a true 32-bit chip which has a built-in coprocessor interface that works with up to eight dedicated coprocessor chips for tasks like floating point calculations, faster disk transfers and graphics processing. However all 68000 instructions are duplicated in the new chip, so all your old Mac software should still run on the new machine.

How many slots Apple will provide on the Paris is, however, a contentious issue. The figures seem to vary from one to twelve, with the most likely number being six. And one rumour has it that Apple will be bringing out a line of three new machines with models having one, six and twelve slots. According to this rumour you choose what you want, and pay extra for the additional slots.

This list seems unlikely. The cost of having so many models on the assembly line would be prohibitive. I can't for the life of me see why anyone would build a machine with 12 slots when the previous model had none, especially when almost everything you want as an odd-on is al-

ready built into the architecture.

It is not like the old Apple II days when you needed a slot to get 80 characters on the screen, and another for a clock, and others to drive the printer and the modem. All these functions are already there in the Mac.

So I'll stick my neck out and take a guess at six slots. You'll use one for a SCSI (Small Computer Systems Interface) — unless they've built this in — another to drive a colour monitor, and a third for the MS-DOS emulation card. This still leaves three for memory expansion cards (up to 16 Mbytes) and for future developments.

Apple have taken the lead in developing the Nubus standard for open architecture machines, so we can be pretty sure that Paris will follow this architecture.

Nubus standards have been set by an IEEE committee. Add-on boards will be about 30 cms long and use a Eurocard 96-pin connector on the base for the primary connection, and have an I/O connector at the front and possibly an auxiliary connector on the top-rear.

The designers need plenty of links with these new cards now that Paris is using a true 32-bit bus.

The size of these cards will control the size of the box, so expect Paris to have a footprint at least 30 cms from front to back and be the width of the present GS keyboard.

We know the maximum memory of the new computer since this is fixed by the choice of the 68020 chip and the address bus, but the minimum standard is still conjecture. Two RAM figures are being quoted — 1 or 2 Mbytes.

Most rumour-mongers are opting for 2 Mbytes, but I'll take the lower figure; Apple will be fighting to keep the initial cost of the machine down and installed memory chips are still quite expensive in megabyte lots.

A 20 Mbyte hard disk will probably be standard issue with this level of machine and it will probably be internally mounted and use SCSI links. Levco, a US manufacturer of Mac peripherals has already introduced an internally mounted 40 Mbyte SCSI hard disk for the Mac, so Apple can't be far behind.

Communications and the ability to interface with other micros (mainly MS-DOS machines), minis (mainly DEC and IBM 34 and 36), and IBM mainframes is increasingly important for Apple's position in the

market — not just for office use, but also to enable Paris to be used as an intelligent workstation for cadcam operations.

Appletalk will be built in for easy access to LANs, but there is also rumoured to be a special Ethernet adapter card available from Apple themselves. They could also have a direct link to IBM's Token Ring network, but to date the Token Ring has been less than spectacularly successful.

It is hard to see why Apple themselves would become involved at this level — they usually leave this type of development to third-party companies.

### MS-DOS

Certainly Apple and at least one other third-party supplier will be selling an MS-DOS card. These will use the Intel 80826 chip (the same as an IBM AT) and they will run DOS as a task. I would lay money on this being available in March, despite rumours that they have been having trouble with it. MS-DOS links are vital to the long-term success of the Mac.

Apple are also upgrading its Applelink electronic mail program to improve communications between the Mac and the IBM world. It has been working with Northern Telecom to create a system which would automatically convert Mac files to DOS format (and vice versa) and with 3Com on enhancements to the Ether-series network operating system. The Mac can now be used as a file server to control the network operating system — up until now you needed an IBM PC in this role.

Mac-to-Vax communications is also possible through Odesta's Helix VMS, using Appletalk links through Ethernet to a Vax or Microvax. The Mac is no longer alone; connectivity is the name of the game in the business world.

The normal operating system for the Paris will either be the standard Mac one, or Unix System V — supposedly a version with the Berkeley 4.2 BSD extensions. If you buy Mac Unis, you will also be able to run the standard language packages of C, Fortran-77 and Assembler, and there will be an optional package with MPW Pascal.

Multitasking with the Mac operating system running under Unix is also on the way, so they say. But it won't be ready in time for the March launch.

There is a special memory management chip built into the machine, mainly to take the load off the 68020 when multi-tasking, and allow the machine to run faster. It is

*'We will probably introduce more products over the next 12 months than Apple has introduced since the company was founded. These are very complex products; things that we have never been in before — things like system products.'*

also no secret that Paris will have a 68881 floating point co-processor to speed up the number crunching.

On the display front, Paris will certainly have colour — but not as standard: you'll need a plug-in board. The monitors being readied for March are said to be a 30 cm monochrome PGA-style monitor with 640 x 480 pixel resolution, and a slightly larger colour monitor with much the same quality specifications. There is also talk of an Apple video card which will drive the displays in true grey scale.

High-resolution bit-mapped displays are the vision of the computer industry's future, and Apple aren't about to relinquish their lead in this area. Bit-mapping displays places a tremendously heavy burden on the processing power of micro-processors (even the high-speed 68020) so we can predict that Apple will add one of the new "Bitters" or "Raster-Op Processor" chips from Intel or Texas Instruments to handle windows, and so on.

### High-Resolution Monitors

Later in the 1987, Apple are said to be moving up to high-resolution monitors (1024 x 1024 pixels — both colour and mono) with a 55 cm screen diagonal. But these will be mainly for cadcam programs and desktop publishing, and they'll be expensive.

The new Mac will obviously steal some new technologies from the GS, and since Apple are now set on building a line of computers from the Apple II e/c, through the GS, to Mac Plus and Paris, you can bet that the new disk-formats and some of the

more innovative technologies of the GS are retained in Paris.

One thing to consider is that the initial purchase price of the new computer is a major factor in its acceptance by the market. So if you are providing slots, then it makes sense to save on production costs by keeping the less universal features (like SCSI, colour and sound) on pluggin cards rather than building them in.

The Laserwriter will also be souped up in March. There will be a high-end machine using the Canon LBP-20 engine equipped with its own 68020 and a special custom-built 64-pin square graphics chip. They've got these machines printing at a resolution of 600 dots per inch (twice as good as before), but there have been problems of reliability which might not yet be solved.

There might also be a low-priced Personal Laserwriter Plus which will print at about 4 pages a minute. It won't have Postscript builtin, but it will directly execute Quickdraw commands and have a faster initial access time.

In appearance, we can safely predict that all these new releases will follow the new 'platinum' colour and modular styling set by the GS. The keyboard of the Paris will be the same as the GS, with the mouse plug on the keyboard itself. A real boon to left-handers, since you can plug the mouse into either side.

Apple might even add the GS's Ensoniq music/voice synthesiser chip, but the added costs could defeat them. Costs are going to be a real problem with Paris, and Apple have learned a lesson from the demise of the Lisa.

With most of the above, the cost of the new machine in Australia will, of necessity, be in the \$10- 12,000 range, so it is probable that a one-slot version (for LANs links and MS-DOS emulation) will also be offered at about \$8,000. There have been rumours about a one slot Mac, code-name 'Aladdin' for quite some time.

And this is all only a beginning to Apple's developments in 1987. As John Sculley remarked to US security analysts last year: 'We will probably introduce more products over the next 12 months than Apple has introduced since the company was founded. These are very complex products; things that we have never been in before — things like system products.'

Now we can only sit, wait — and then evaluate. □



## *HAL is another add-in to 1-2-3 (hopefully not related to the HAL in 2001). Its acronymic name stands for Human Access Language, and I understand the program lurks in the shadow of 1-2-3. When called up, it adds to the everyday 1-2-3 commands — it includes an UNDO feature, which could be most useful.*

AFTER TRAIPSING around the country for several months on business, I returned to Sydney to find:

- Lotus 1-2-3 is still the top seller among spreadsheets,
- A brand new copy of Release 2.01 sitting on my desk,
- Forty-seven course brochures from MTE also on my desk.

So, on to Release 2.01. Outwardly it looks the same as Release 2, apart from the 2.01 which appears only on the box's cover sheet, not the box itself. Along with the usual disks and documentation there are three booklets, *What's Different*, *A Note to Hard Disk Users* and *Important Information for Hard Disk Users — Read This First*. *What's Different* is a seven-page booklet explaining the differences between Release 1A and 2.01, and between Release 2 and 2.01. This is far preferable to having to find out the changes by experiment. The booklet even admits (well almost) there was something wrong with Release 2. One of the "technical improvements" is "File Retrieve time is faster" — this is quite an understatement.

As I am a hard disk user, I then read the other two booklets. *Important Information* tells you how to clear Release 2 from your disk — using a file appropriately called 'zap' — so you can install 2.01. If you don't have Release 2, don't worry. The other booklet *A Note to Hard Disk Users* gives alternative instructions for installation "if you have difficulty installing 1-2-3 on your hard disk while using the Install program". This information should have been in an appendix to the Getting Started manual, which describes the installation procedure.

Installation is a lengthy process, but if you follow the step-by-step instructions, you should have no trouble. For hard disk users, the good news is that at last Lotus has given us a program which allows us to start it from a hard disk without having a diskette in Drive A. The bad news is that this has been achieved at the expense of having a nasty copy-protection scheme from Softguard.

copy protection on dBase III, Lotus is the only major software company still using copy protection. But I wouldn't want to hold my breath waiting for it to change its policy.

So far I haven't been able to make very much use of Release 2.01, but I haven't run into any problems with it. I would recommend upgrading from Release 2, simply because of the saving and retrieving problem.

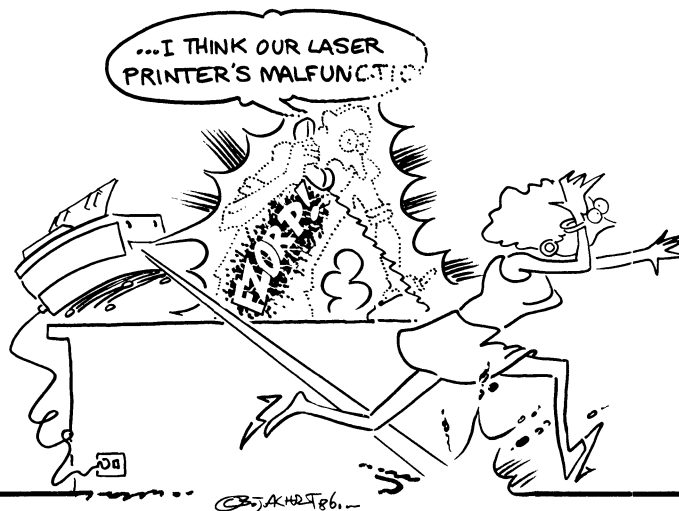
### **HAL**

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I can see why Lotus is putting out these add-ins; the cost of rewriting 1-2-3 to include them would be astronomical. The trouble is that if you use many of them you'll run out of memory, and probably out of money. I imagine there would also be a problem trying to assimilate all these bits and pieces.

Another Lotus product in the news is Manuscript, a word processor. It is apparently designed for technical and scientific word processing, but we'll have to wait and see whether this means it will be unsuitable for ordinary business use. □

When you install 1-2-3 on a hard disk, the installation creates a hidden subdirectory containing several hidden files, and even a hidden sub-subdirectory. You are allowed only *one* installation from the system diskette. So if you have a hard disk failure and you can't uninstall 1-2-3, running the RESTORE command will give you an unworkable copy and you'll have to use the Backup System diskette. That's okay because you have the back-up diskette, but you can still make mistakes or have a series of hard disk problems, so I feel uneasy with this type of copy protection. Now Ashton-Tate has done away with



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**Wordseek:** An on-screen version of popular word search puzzles. It is a combined basic binary program and features bonus score, timer and keyboard or joystick options. You can create your own puzzles and it's educational. V Greaves see above.

**Tunesmith:** Is a utility program which turns the Amstrad keyboard into a piano covering one octave. The octave is adjustable and is very easy to master. Tunes can be saved to later run on its own or be merged with other

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**AMUA:** The Australian Amiga Users Group is a non-profit national organization dedicated to the distribution of information for the Amiga User. New member enquiries welcome. Write to Australian Amiga User Association, C/- Post Office, Penrith 2750.

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**All Contributions:** should include your name, address, and home and office phone numbers (in case we need to check details). Each page of your submission, and any material sent with it, should also carry your name.

**Contributions by Telephone:** Contributors who have modems and suitable software (in the MODEM7/YAM mould — see our stories on

Christensen Protocols in the May and June 1983 issues) can arrange direct transfer to our computers through our Bulletin Board system, which is on-line 24 hours a day, seven days a week. Contact our office by phone for details on transferring material in this way.

**Contributions on Disk:** Contributions can be accepted in most disk formats, although some have to be converted outside our offices, which will add to the (often lengthy) delay between receipt and acknowledgement. The preferred medium is IBM standard format single-sided, single-density, 20 cm (8 inch) CP/M disks or IBM PC-DOS minifloppies. We can also handle, in-office, most soft-sectored 13 cm (5.25 inch) disks, thanks to PC-Alien — so unless you have a particularly strange format, send it on disk straight from your machine. Please pack them extremely carefully if posting and label all disks with your name, address and phone number.

**Listings:** Unless it is absolutely impossible, we want listings produced on the computer. This reduces the risk of error — if the computer typed it, the computer probably accepted it. Print listings with a dark — preferably new — ribbon on white paper, and try to format the output to a narrow (40 characters) width. If they can't be produced on a printer, borrow a good typewriter — hand-written material is likely to sit around the office for a year before someone can find time to type it all out for you! Please provide an account of what the program does, how it works and so on. Any comments on the program should refer to the address, line number or label rather than to a page number. Any comments on modifying the program to work on other machines will be appreciated. Try to include a printout of at least part of a sample run if possible.

**Style:** All items should be typed (or printed) and double-spaced on plain white paper. We will only accept original copies — no photostats. Include your name, address, telephone number and the date on the first page of your manuscript (all manuscript pages should have your surname and page number in the top right-hand corner). Be clear and concise, and keep jargon and adjectives to a minimum. □

# AD INDEX

ADE Computers .....	130
AID Systems .....	92
Apple Australia .....	25,26,27
Applix .....	49
Attache Software .....	55
Australian Exhibition Services .....	59
Automation Ice Co .....	135
Automation Statham .....	134
AWA .....	155
Barries Pty Ltd .....	44
Barrington Corporation .....	116
Blue Sky Industries .....	12
Capitol Software .....	100
Computer Business Systems .....	138
Computer Print and Paper .....	101
Creative Computing .....	52
Custom Made Software .....	40
Cypher Research .....	141
Dick Smith Electronics .....	29
Discware .....	122,123
Earth Computer Services .....	129

Emona .....	106
FBN Software .....	66
Federal Publishing .....	46,47,98,132
FPC Marketing .....	146
Glyphic Software .....	159
Hales and Rogers .....	6
Hi-Tech Software .....	20
Hypex .....	42,43,139
Interface Publications .....	78
JED .....	141
Logo Computers .....	137
Mace Reel .....	131
MacLagan Wright & Assoc .....	70
Micro Educational .....	159
Microbee Systems .....	110,111
Microland .....	90,91
Micromart .....	67
Mitsui .....	34
Moncrieff .....	IBC
Nashua .....	IFC

Natwest MGT .....	71
Netcomm .....	161
Perfect Interface .....	33,145
President .....	74,75,84,89,97
Ritronics .....	76
Select Software .....	102,103
Sharm Computers .....	148
Software Express .....	68
Software On The Cheep .....	159
Software Underwriters .....	41,92
Sony .....	4
Star Micronics .....	125
Stemsoft .....	104
Subscriptions .....	147
Techflow .....	30
Technology Interface .....	82,83
The Computer Factory .....	153
Toshiba .....	OBC,10
TPM Constructions .....	98
Verbatim .....	115
Vizden .....	121





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- Our database of the new products listed in the magazine each month.
- Sample programs from dLetter (in case you didn't know, dLetter — for dBase II and III users — goes out FREE with subscription copies of the magazine).
- And many of those useful bits of code we publish in the magazine — yours for the downloading.
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